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Official, No. 14.

QUARTERLY WEATHER REPORT

OF THE

METEOROLOGICAL OFFICE.

For 1871.

Published by the Authority of the Meteorological Committee.

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PREFACE.

THE publication of this Volume has been delayed, several subsequent Parts having appeared before it has been completed.

Part I. appeared in October 1872, Part II. in January, and Part III. in June 1873, while Part IV. is only now issued.

The Volume does not differ in arrangement from that for 1870.

It contains five Appendices, of which the most important is No. 2, containing the Results of the Discussion of the Anemometrical Results furnished by the Anemometer at Sandwick Manse in the Orkneys for the six years 1863-68 inclusive.

The Mean Results for the more important elements from the Seven Observatories have been given both in the English and French Scales.

ROBERT H. SCOTT.

June 1874.

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ERRATA.

Page 6,	Gale Table, Valencia, hour of max. velocity - - - -	for 30th	read 31st.
„ 23,	Pressure Table, January, Armagh -	„ +·028	„ −·028.
„ „	„ „ „ Aberdeen -	„ 29·613 and −·110	„ 29·712 and −·011.
„ „	last line, omit "Aberdeen and."		
„ 24,	Pressure Table, February, Aberdeen -	„ +·084	„ −·048.
„ 37,	„ „ June, Valencia -	„ −0·051	„ −0·151.
„ 47,	„ „ September, Kew -	„ 29·786 and −·188	„ 29·886 and −·088.

APPENDIX.

Page [1],	Valencia, pressure of dry air, October, and Annual - - -	for 29·358 and 29·561	read 29·458 and 29·569.
„ [4],	Kew, Minimum Pressure, August -	„ 17d. 22h. and 29·427	„ 18d. 6h. and 29·385.
„ „	Mean Bar, and pressure of dry air, September - - - -	„ 29·749 and 29·380	„ 29·849 and 29·489.
„ „	Mean Bar, and pressure of dry air, Annual - - - -	„ 29·930 and 29·644	„ 29·939 and 29·653.
„ [5],	Thermometers, Aberdeen, wet, April 21–25 - - - -	„ 3°·4	„ 37°·4.
„ [61],	Aberdeen, atmospheric pressure, Col. C_2, 1869 - - -	„ 1341 5	„ 134 15.
„ „	Aberdeen, atmospheric pressure, Col. C_2, 1870 - - -	„ 205 1	„ 20 51.
„ [66],	Kew, Mean Bar, and pressure of dry air, September - -	„ 755·61 and 746·47	„ 758·15 and 749·01.
„ „	Kew, Mean Bar, and pressure of dry air, Annual - - -	„ 760·22 and 752·95	„ 760·43 and 753·16.

ADDITIONAL ERRATA FOR 1869.

Introduction, page ii.,	Armagh Barometer, correction at 30° and 29·0 in. - - -	for ·330	read ·230.
Page 32,	Pressure Table, January, Stonyhurst,	„ +·077	„ +·096.
„ 33,	„ „ February, „	„ −·066	„ −·046.
„ „	„ „ March, „	„ +·019	„ +·040.
„ 34,	Temperature Table, February, Aberdeen - - - - -	„ +2°·3	„ +3°·8.
„ 35,	Temperature Table, March, Stonyhurst - - - - -	„ +1°·2	„ −1°·9.
„ 38,	Aberdeen, pressure, May, mean and dry air - - - -	„ 29·791, 29·587	„ 29·824, 29·620.
„ „	Aberdeen, pressure, Annual, mean and dry air - - -	„ 29·737, 29·488	„ 29·740, 29·491.
„ 39,	Falmouth, pressure, May, vapour tension, and dry air - -	„ ·315, 29·263	„ ·318, 29·260.
„ 57,	Pressure Table, April, Stonyhurst -	„ +0·099	„ +0·089.
„ 58,	„ „ May, Aberdeen -	„ 29·890, −0·062	„ 29·923, −0·029.
„ 79,	Temperature Table, August, Kew -	„ −0°·2	„ +0°·6.
„ 108,	Pressure Table, October, Falmouth -	„ +0·115	„ +0·212.
„ „	„ „ November, „ -	„ +0·167	„ +0·067.

ADDITIONAL ERRATA FOR 1870.

Page 23,	Pressure Table, January, Aberdeen -	for +0·137	read +0·127.
„ 26,	Comparison of five-day means, Jan. 6–10 -	„ +4°·6	„ +6°·6.
„ „	„ „ „ Jan. 21–25 -	„ −7°·4	„ −2°·9.
„ „	„ „ „ Jan. 26–30 -	„ −11°·8	„ −7°·3.
„ „	„ „ „ Jan, 31 to Feb. 4	„ +2°·6	„ +6°·5.
„ 38,	„ „ „ May 6–10 -	„ −6°·7	„ −4°·7.
„ „	„ „ „ May 21–25 -	„ +4°·8	„ +3°·8.
„ „	„ „ „ June 15–19 -	„ +7°·3	„ +6°·5.
„ 53,	Pressure Table, August, Armagh - -	„ +0·176	„ +0·166.
„ „	„ „ „ Aberdeen - -	„ +0·175	„ +0·185.
„ 85,	„ „ November, Valencia - -	„ − ·275	„ − ·245.
„ „	„ „ „ Falmouth - -	„ − ·164	„ − ·154.
„ 86,	„ „ December, „ - -	„ − ·048	„ − ·148.
„ 87,	Temperature Table, October, Valencia - -	„ +1°·7	„ +0°·7.

QUARTERLY WEATHER REPORT.

The Reader is requested to paste the following Tables over the Tables given on the pages indicated for the Volumes of 1869 *and* 1870 *respectively, which have been found to be erroneous.*

1869. p. 60.

Dates.	Variation.	Dates.	Variation.	Dates.	Variation.
	°		°		°
April 1– 5	−1·3	May 1– 5	−2·5	May 31–June 4	−1·5
„ 6–10	+5·6	„ 6–10	+3·2	June 5– 9	+5·3
„ 11–15	+12·5	„ 11–15	−0·2	„ 10–14	−3·6
„ 16–20	+1·7	„ 16–20	−2·5	„ 15–19	−7·6
„ 21–25	+6·0	„ 21–25	+0·1	„ 20–24	−4·7
„ 26–30	+4·1	„ 26–30	−5·2	„ 25–29	−3·9

1870. p. 89.

Dates.	Variation.	Dates.	Variation.	Dates.	Variation.
	°		°		°
Sept. 28–Oct. 2	+1·5	Oct. 28–Nov. 1	+1·9	Nov. 27–Dec. 1	−1·3
Oct. 3–7	+0·1	Nov. 2–6	−4·3	Dec. 2–6	−6·9
„ 8–12	−3·0	„ 7–11	−6·1	„ 7–11	−6·7
„ 13–17	−0·6	„ 12–16	−5·8	„ 12–16	+5·6
„ 18–22	+2·1	„ 17–21	−2·4	„ 17–21	+0·2
„ 23–27	+0·6	„ 22–26	+7·6	„ 22–26	−12·7
				„ 27–31	−10·6

The variations during the quarter were irregular, but not of great magnitude, with the exception of the unusually cold period at the end of December.

34146.

We find that a depression has made its appearance over the north of Scotland, which produced slight westerly and N.W. gales in the south of Ireland, while the local depression of temperature over the north-east of England disappeared. On looking to Plate I. we see that this disturbance is somewhat remarkable in its character, as it is shown in a much less degree at Valencia and Falmouth than at the other observatories, especially at Kew.

The wind only exceeded the velocity of 40 miles for a few hours at Holyhead and Valencia, but at the former station a strong breeze had been felt on the 4th. At

QUARTERLY WEATHER REPORT,

1871.

Jan. 1. The barometer had fallen more than half an inch at all the Irish and Scotch stations, where the temperature had risen above the freezing point. Very cold weather was still prevalent in England, a hard frost being reported from the north-east coast, where the reading was 28° lower than that at Scilly! A fresh S. to S.E. gale was blowing at all the western and northern stations, as well as on the south-west coast of Norway, which had commenced on the previous evening, as is shown in the table.

Observatories. Dec. 1870 and Jan. 1871.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	10 a.m. (31st).	S.E. by E.	Midngt. (31st).	S.E. by S.	40	7	10 a.m. (1st)	S.W.	24	3 a.m. (1st).	S.E. by S.	42	Wind veered to S.W. suddenly at 10 a.m. 1st.
Armagh -	Midngt. (31st).	S. by E.	—	—	—	—	2 p.m. (1st)	S. by E.	14	6 & 7 a.m. (1st).	S.	36	—
Aberdeen -	7 p.m. (31st).	S. by W.	—	—	—	—	6 a.m. (1st)	S. by W.	11	Midnight (31st).	S. by W.	36	—
Falmouth -	11 a.m. (1st).	S. by E.	—	—	—	—	Midngt. (1st)	S.	13	9 p.m. (1st).	S. by E.	37	—
Holyhead -	4 p.m. (31st).	S. by E.	7 p.m. (31st).	S.S.E.	46	28	3 a.m. (2nd)	S.S.E.	36	11 a.m. (1st).	S.S.E.	53	—
Sandwick -	Mdngt. (30th).	S.	9 a.m. (31st).	S.	45	27	10 p.m. (1st)	S.	46	11 p.m. (31st) to 1 a.m. (1st).	S.	53	—

The barometer began to rise briskly in Ireland in the afternoon, and the depression became very much reduced in intensity as it passed on to the eastward, so that by 8 a.m. next morning the gale had quite died away on our coasts, the wind having veered to N.N.W. at the south-western stations, where heavy rainfall was reported. Much greater uniformity of temperature was observable than on the previous day.

Jan. 5. We find that a depression has made its appearance over the north of Scotland, which produced slight westerly and N.W. gales in the south of Ireland, while the local depression of temperature over the north-east of England disappeared. On looking to Plate I. we see that this disturbance is somewhat remarkable in its character, as it is shown in a much less degree at Valencia and Falmouth than at the other observatories, especially at Kew.

The wind only exceeded the velocity of 40 miles for a few hours at Holyhead and Valencia, but at the former station a strong breeze had been felt on the 4th. At

Falmouth, Sandwick, and also at Alnwick Castle, the velocity at times exceeded 30 miles an hour. On the evening of the 4th a bright aurora was seen at Thurso and Sandwick.

The barograms at all the stations exhibit a general decrease on the 6th and 7th, on which latter day, at 8 a.m., the gradient from Penzance to Thurso was as much as 8. The isobars took a due east and west course across the British Islands, and readings varied from 30·20 at Biarritz to 28·94 at Christiansund. The temperature at all stations rose above the freezing point, and at Armagh the change on the 6th was very great. Slight westerly gales were felt on several parts of our coast, and also on the 6th at Hamburg and Skudesnaes, where the direction drew through S.W. to S.E.

Observatories. January 6, 7, 1871.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	3 a.m. (6th).	S.W.	5 a.m. (6th).	S.W.	42	2	6 p.m. (6th)	S.W.byW.	15	6 a.m. (6th).	S.W.	42	—
Glasgow -	11 a.m. (6th).	S.W. by S.	—	—	—	—	3 p.m. (6th)	S.W.byW.	4	11 a.m. (6th).	S.W. by S.	39	—
Aberdeen -	—	—	—	—	—	—	—	—	—	11 a.m. (6th).	S.S.W.	30	—
Sandwick -	10 a.m. (6th).	S.	11 a.m. (6th).	S. by E.	40	2	5 p.m. (6th)	W.	7	11 a.m. & 3 p.m. (6th).	S. by E. & W. by N.	40	In a squall at 2 a.m. 6th velocity increased to 40 miles. Wind veered to W. suddenly at 2 p.m. 6th.
	Midngt. (6th).	W.S.W.	3 a.m. (7th).	W.S.W.	44	2	8 a.m. (7th)	N.W.	8	4 a.m. (7th).	W.S.W.	45	
Falmouth -	3 p.m. (7th).	W. by N.	—	—	—	—	7 p.m. (7th)	W. by N.	4	4 p.m. (7th).	W.	34	—
Holyhead -	6 a.m. (6th).	S.W.by S.	—	—	—	—	4 p.m. (8th)	W.N.W.	58	9 a.m. (8th).	W.N.W.	42	This velocity was only reached for one hour.
Alnwick Castle.	1 a.m. (7th).	W. by S.	8 a.m. (7th).	S.W.byW.	43	2	11 p.m. (7th)	W. by S.	22	8 a.m. (7th).	S.W.byW.	46	Wind exceeded the velocity of 30 miles several times on the 6th, and reached 40 miles at 11 p.m., but it blew only in gusts.

During the day the barometers rose to some extent in Scotland and Ireland, so that the wind had veered to N.W. on our south-west coast by the morning of the 8th, blowing fresh with hail squalls, and thunder and lightning at some stations.

In the afternoon a fresh decrease appeared at Valencia (Plate II.), the wind backing to west and falling light. At midnight, however, a strong westerly breeze sprung up which did not reach the force of a gale. The barometrical oscillation passed over all the observatories, but was of much less extent in Scotland than elsewhere. It was most serious at Falmouth, where the decrease during the night amounted to 0·4 in.

Jan. 9. We see (Fig. 1, Plate II.) that a limited area of depression is situated over Devonshire, the gradients being very steep on its western side, and amounting to 9 between Valencia and Plymouth. Consequently we find that a stiff N.W. gale is blowing on the south-west coast, which lasted till the evening.

Observatories. January 9, 1871.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	1 a.m. (9th).	W. by N.	—	—	—	—	8 a.m. (9th).	N.W.	7	1 a.m. (9th).	W. by N.	35	—
Falmouth -	5 a.m. (9th).	W. by N.	8 a.m. (9th).	W.N.W.	47	10	10 p.m. (9th)	N.N.W.	17	11 a.m. noon 1 & 3 p.m. (9th).	N.W. to N.N.W.	50	—
Holyhead -	9 a.m. (9th).	N.N.W.	11 a.m. (9th).	N.W.	46	10	Midnight (9th).	W.N.W.	15	1 p.m. (9th).	N.W. by N.	54	—

The barometer rose rapidly in the course of the day at the Irish stations and at Falmouth, but it soon began to fall again, and a fresh disturbance passed over these islands on the 10th, which was very similar in its character to that of the previous day, as will be seen from the chart (Fig. 2.) for 6 p.m. on the 10th. As on the 9th, the northern stations hardly felt the disturbance at all, and the gale was confined to our southern coasts; its direction also was westerly instead of north-westerly.

Observatories. January 10, 11, 1871.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	Noon (10th).	W.	3 p.m. (10th).	W.N.W.	44	7	4 a.m. (11th)	N. by W.	16	3 & 4 p.m. (10th).	W.N.W.	49	Veered to northward on evening of 10th.
Sandwick -	7 a.m. (11th).	N.N.W.	—	—	—	—	2 a.m. (12th)	N.N.W.	19	6 p.m. (11th).	N.N.W.	37	—
Falmouth -	4 p.m. (10th).	W. by N.	4 p.m. (10th).	W. by N.	44	4	4 a.m. (11th)	N. by E.	12	5 p.m. (10th).	W. by N.	47	Wind increased to a strong breeze from N.N.W. at times during the 11th.
Holyhead -	6 p.m. (10th).	E.N.E.	9 a.m. (11th).	N. by W.	43	11	2 a.m. (12th)	N.	32	11 a.m. (11th).	N. by W.	49	Wind backed to N.N.W. towards midnight of 10th, and fell below 30 miles for two hours (min. 25 miles).
Alnwick Castle.	—	—	—	—	—	—	—	—	—	10 a.m. (11th).	N.W. by W	34	—

A brisk recovery of pressure is then noticed, and by the morning of the 11th the disturbance had almost passed away from our coasts, the only remains of it being a slight northerly gale on the coasts of Wales and Cornwall, which extended to the west coast of France. During the night Capt. A. A. Jones, of the "Victoria Nyanza," reports a heavy N.N.W. gale with "terrific squalls," when he was near the Scilly Isles.

A wave of high pressure passed over all our stations on the 12th, Plate III., subsequent to which the barometer began to fall steadily and rapidly at all the observatories, and continued to do so with remarkable uniformity during the 13th and

14th. A sudden and marked rise of temperature is shown by all the thermograms except those for Valencia and Aberdeen on the 13th, and the equatorial current, which had so constantly been driven back during the preceding days, at last succeeded in establishing itself, so that the frost was finally broken up. Fog was prevalent off the west coast of Ireland on the 13th. Aurora was seen at Thurso at night.

The wind shifted to S.W. and blew a gale at some stations, especially at Holyhead. Hail-squalls with thunder were reported from Valencia.

Observatories. Jan. 13-15, 1871.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	11 p.m. (13th).	S.	1 a.m. (14th).	S.	42	7	8 a.m. (14th)	S.W. by S.	9	6 a.m. (14th).	S. by W.	46	Wind also freshened to a strong breeze from the southward in the afternoon of the 14th.
Aberdeen	8 a.m. (14th).	S.W. by S.	—	—	—	—	10 a.m. (14th)	S.W. by S.	2	9 a.m. (14th).	S.W. by S.	35	—
Sandwick	2 a.m. (13th).	W.S.W.	—	—	—	—	4 p.m. (13th)	S.W.byW.	14	4 a.m. (13th).	W. by S.	37	—
Falmouth	1 p.m. (14th).	S.S.W.	2 a.m. (15th).	S.	42	5	8 a.m. (15th)	S. by W.	19	4 a.m. (15th).	S. by E.	45	—
Holyhead	1 a.m. (14th).	S.	1 p.m. (14th).	S.	49	8	11 a.m. (15th)	S.S.W.	34	7 a.m. (15th).	S.S.E.	58	—
			2 a.m. (15th).	S.S.E.	53	8							
Stonyhurst	1 a.m. (15th).	S.	9 a.m. (15th).	S. by E.	41	4	3 p.m. (15th)	S.	14	9 a.m. (15th).	S. by E.	43	—
Alnwick Castle.	1 a.m. (13th).	W.	2 a.m. (13th).	W. by S.	42	3	9 a.m. (13th)	S.W.byW.	8	2 a.m. (13th).	W. by S.	47	Wind freshened to a strong breeze from S. by W. at 6 and 7 a.m. 15th.

Jan. 15. We see from Fig. 3, Plate III., that readings were below 29 ins. at 8 a.m. over the north and west of Scotland. The isobars ran in a N.E. and S.W. direction across these islands and the North Sea, and the gradient from Cape Gris Nez to Leith was as much as 10. The only district where a gale was reported was on the west coast of Great Britain, where the gale of the preceding day had not yet died out; in fact it lasted at Stonyhurst and Sandwick until the afternoon.

At noon a very rapid decrease set in at Valencia, where the mercury fell to 28·35 at 9 p.m. At this time the light was unfortunately cut off for some hours, else, as the standard reading at 10 p.m. was 28·174, a still lower reading might probably have been recorded. The minimum reading for the month was recorded at all the observatories during this storm, and at Sandwick Manse Dr. Clouston reports that the reading (uncorrected) of 28·170 at 3 p.m. on the 16th was lower than had been obtained for many years, except on two occasions, April 8th, 1860, and December 13th, 1869.

The form of the hollow in the barograms, as we see from Plates III. and IV., was very different at the Irish stations from what is observed elsewhere. The recovery on the morning of the 16th was especially brisk at Armagh, so that by 8 a.m. on that day (Fig. 4) the centre of the disturbance lay near the Isle of Skye. The highest readings

reported lay to the eastward; the gradient from Helder to Ardrossan being 12·5, while that from Helder to Yarmouth was as much as 17!

The force of the wind was very severe on the west coast of Ireland, springing up at 2 p.m. at Valencia, and reaching the unusual velocity of 81 miles an hour from S.S.W. at 11 p.m. At Armagh the speed of 50 miles an hour was attained at 4 a.m., 16th, a velocity which had not been recorded there for the two previous years. The maximum hourly velocity at Holyhead was 68 miles at 1 a.m. According to a letter (which appears in Symons' British Rainfall for 1871, p. 75,) from the Rev. Jas. Graves, a well-known and accurate observer in the county of Kilkenny, in Ireland, a very remarkable storm of about an hour's duration passed over that district between 10 and 11 p.m. on the night of the 15th.

Thunderstorms with hail were reported from the south of Ireland, and also by Capt. Watson of the S.S. "Parthia" and Capt. M'Donald of the S.S. "Europa" off the west coast of Ireland. The latter observer records corposants on the mastheads and yardarms at midnight.

The particulars of the gale are given in the subjoined table. It will be seen that it was very general but not of long duration.

Observatories. Jan. 15, 16, 1871.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind,	Velocity.	
Valencia	1 p.m. (15th).	S. by W.	2 p.m. (15th).	S.	52	12	5 a.m. (16th)	W.	16	11 p.m. (15th).	S.S.W.	81	Lull 5 to 7 a.m. 16th, when wind backed to S. by E., and the velocity fell to 17 miles.
	8 a.m. (16th).	S.W.byW.	10 a.m. (16th).	S.W.	41	5	6 p.m. (16th)	W.	10	4 p.m. (16th).	S.W.	43	
Armagh	10 p.m. (15th).	S.E. by S.	1 a.m. (16th).	S.E.	45	6	2 p.m. (16th)	S. by W.	16	4 a.m. (16th).	S. by E.	50	—
Glasgow	4 a.m. (16th).	E. by S.	—	—	—	—	4 p.m. (16th)	S.	12	9 a.m. (16th).	S. by E.	38	—
Aberdeen	4 a.m. (16th).	S.S.E.	5 a.m. (16th).	S.S.E.	49	4	Noon (16th)	S. by E.	8	7 a.m. (16th).	S.S.E.	54	—
Sandwick	3 a.m. (16th).	S. by E.	6 a.m. (16th).	S.E. by S.	46	13	2 p.m. (17th)	S. by W.	35	9 a.m. (16th).	S.E.	57	—
Falmouth	8 p.m. (15th).	S.	9 p.m. (15th).	S. by E.	52	5	10 p.m. (16th)	W.S.W.	26	11 p.m. (15th).	S. by E.	57	Wind had blown 34 and 30 miles from S.W. at 1 and 2 p.m. 15th. It was very gusty on the 16th.
Holyhead	3 p.m. (15th).	S.S.W.	9 p.m. (15th).	S.E. by S.	50	14	1 a.m. (17th)	S.W. by S.	34	1 & 2 a.m. (16th).	S.E.	68	—
Stonyhurst	2 a.m. (16th).	S.E. by S.	3 a.m. (16th).	S.E.	52	2	6 a.m. (16th)	W.	4	4 a.m. (16th).	S.E. by S.	55	—
Alnwick Castle.	2 a.m. (16th).	S.	—	—	—	—	7 a.m. (16th)	S.	5	5 & 6 a.m. (16th).	S.S.E.-S.	39	—
Kew	2 a.m. (16th).	S. by E.	4 a.m. (16th).	S. by E.	47	4	9 a.m. (16th)	S.S.W.	7	5 a.m. (16th).	S. by E.	51	—
Yarmouth	2 a.m. (16th).	S.	4 a.m. (16th).	S. by E.	47	7	Noon (16th)	S. by W.	10	7 & 8 a.m. (16th).	S. by E.	52	—

Jan. 17. We see from Fig. 5 (Plate IV.) that though the same isobars appear as on the preceding figure, they are farther asunder and the gradients are much less, so that the gale is only reported from the stations of Ardrossan, Wick, and Oxö in Norway.

The barometer then commenced to rise steadily and uniformly for the next three days; aurora being reported from the Orkney Islands every night. On the 21st, however, a depression showed itself in Ireland (Plate V.) which passed southwards towards France, being hardly noticeable in Scotland. It of course influenced the direction of the wind, but no force beyond that of a light breeze was felt. Capt. Price, however, in the S.S. "Idaho" in lat. 51° and long. 16° W. felt a stiff W.N.W. gale.

Pressure was rising steadily in Norway, and an easterly wind appeared in the south of England on the 23rd. This change went on until on the 25th the gradient for an east wind between Scarborough and Cape Gris Nez had increased to 7, and accordingly we find that the easterly wind, which had increased to a strong breeze at Yarmouth, rose to a gale and lasted until noon on the 25th, reaching the velocity of 50 miles an hour at times during the night of the 24th. This gale was not felt elsewhere.

The barometer remained uniformly high until the 29th, on which day the south-easterly winds, which had been steadily blowing at Valencia for more than 24 hours, increased in force to a strong breeze; easterly winds at the same time making their appearance over these islands generally, while a heavy N.E. gale was reported from Oxö.

The barometer had not fallen rapidly, but a steady decrease in the south-west produced the state of things which is represented on Fig. 6 (Plate VII.) for the 31st, when the gradient from Holyhead to Valencia is as high as 8, and a slight south-east gale is blowing at all the south-western stations.

Observatories. Jan. 30, 31, 1871.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	11 a.m. (30th).	E.S.E.	10 p.m. (30th).	S.E. by E.	42	10	Noon (31st)	E.	25	3 a.m. (30th).	S.E. by E.	45	—
Aberdeen -	3 p.m. (30th).	S.E.	—	—	—	—	9 p.m. (30th)	S.E. by S.	6	7 p.m. (30th).	S.E.	34	—
Sandwick -	4 p.m. (30th).	S.E. by E.	—	—	—	—	10 p.m. (30th)	S.E.	6	5 p.m. (30th).	S.E. by E.	33	—
	7 a.m. (31st).	S.E. by S.	—	—	—	—	10 a.m. (31st)	S. by E.	3	7 & 8 a.m. (31st).	S.S.E.	33	
Falmouth -	Midngt. (30th).	S.E. by S.	6 a.m. (31st).	S.E. by E.	43	9	2 a.m. Feb. 1st	E. by S.	26	9 a.m. (31st).	S.E. by E.	44	—
Holyhead -	1 p.m. (30th).	E. by N.	—	—	—	—	5 p.m. (30th)	E. by N.	4	2 p.m. (30th).	E. by N.	37	—

The sudden cessation of this gale on the morning of the 1st is very remarkable. We see from Fig. 7 (Plate VII.) that the isobar of 30 ins. has advanced to the south-westward, while that of 30·5 has moved to the east, so that the gradients have been much reduced. Easterly breezes are again everywhere prevalent, with a temperature which is very uniform and ranges near the freezing point.

Feb. 2. The Norwegian pressures had continued to give way rather briskly, and throughout our islands the barometer was falling slowly. The wind showed signs of

veering on our south-western coasts, and temperature rose, except in the more northern parts of Scotland and at Christiansund. The sky was very cloudy, with haze or fog in many places, the fog being very thick at Yarmouth. Rain was falling in the south-west, where during the previous night the barometer had begun to fall rather faster. During the day the decrease in Norway slackened, while that in the south of Ireland became much quicker.

At 8 a.m. on the 3rd, the centre of a definite depression lay rather to the westward of Valencia (see Fig. 8, Plate VII.), where the mercury, though more than 0·6 in. lower than on the 2nd, had commenced rising again since 5 a.m. Gradients were steep across Ireland, the Irish Sea, and St. George's Channel—varying from 8 to 10; but were much less so to the eastward. The weather was still very cold in Norway, though it had become warmer at our southern stations. A moderate southerly and south-easterly gale of short duration had set in on the western coasts, reaching a velocity of 40 miles an hour at Valencia several times during the morning, and 38 miles at Falmouth and Holyhead. At Sandwick, Aberdeen, and Yarmouth, too, the wind rose to rather over 30 miles, but no gale was experienced. Rain had been very heavy in the south of Ireland, slight in the south and south-west of England, while on our south-east coasts thick fog was still reported, and in most places the sky was overcast. This depression then passed off, apparently to the northward, and a recovery took place on our south-west coasts (as will be seen by the Valencia and Falmouth barograms, Plate VII.), accompanied by a temporary veering of the wind. The improvement was brief, for by 8 p.m. a new fall had set in at the Irish southern stations.

Feb. 4. The new disturbance was remarkably similar to that just described, both in extent and position (see Fig. 9, Plate VII.), but the wind which accompanied it was somewhat stronger at the Irish and Scotch stations, and lighter elsewhere than in the former case. Temperature rose at the northern and north-western stations, but was little changed in other places. Rain had become general, with sleet at Ardrossan. The following table gives the principal features of the anemometrical records.

Observatories. February 3rd-5th.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	10 p.m. (3rd).	E.S.E.	2 a.m. (4th).	S.S.W.	44	22	8 p.m. (5th)	W. by S.	46	2 a.m. (5th).	S.	54	Velocity occasionally fell slightly below 40 miles on the 4th.
Aberdeen -	9 p.m. (4th).	S.E.	1 a.m. (5th).	S.E.	41	5	3 p.m. (5th)	S.E. by S.	18	4 a.m. & 5 a.m. (5th).	S.E. by S.	43	—
Sandwick -	11 p.m. (4th).	E.S.E.	10 a.m. (5th).	S.E. by E.	42	17	11 a.m. (6th)	E. by S.	36	5 p.m. (5th).	E.S.E.	45	—
Holyhead -	Midngt. (4th).	S.E. by S.	1 p.m. (5th).	S. by E.	42	3	6 p.m. (5th)	S.W. by S.	18	3 p.m. (5th).	S.	45	—

An easterly gale was also felt at Carrickfergus, which subsided next morning.

During the day this depression also passed away from our coasts, but the subsequent recovery of the barometer was very slight.

Feb. 5. The changes in pressure on this day are remarkable, but, in the absence of continental information, they must be studied at great disadvantage. Very early in the morning the barometer began to rise briskly at Valencia and Falmouth, while in Scotland and at Armagh and Stonyhurst it fell quickly, *especially in Scotland.* At 8 a.m. the barometer was low all along our western coasts (see Fig. 10, Plate VIII.), and high on the eastern shores of the North Sea. Moderate to strong southerly winds blew over England and Ireland, reaching the force of a gale at Carrickfergus, and drawing round to S.E. and E. in Scotland. At Wick a stiff E.S.E. gale was reported. In Norway moderate easterly winds prevailed. The weather was very cloudy, with fog in the north-east, and rain, which had been general, continued in many places—heavily at Aberdeen. During the day a deep depression advanced from the westward or north-westward over Scotland. The minimum reading was registered at Glasgow at 5.30 p.m., and rather later at Aberdeen, the centre of the depression passing between these two observatories, rather nearer to the former than to the latter. At 6 p.m. (see Fig. 11) gradients for west winds were steep over England and Ireland, where the wind, veering to W., rose to a gale, except on the Channel coast. The chief anemometrical indications for Valencia are shown in the previous table, and elsewhere they were as follows :—

Observatories. Feb. 5 & 6, 1871.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Falmouth	11 a.m. (5th).	S.W.by S.	3 p.m. (5th).	S.W. by S.	42	2	2 a.m. (6th)	W. by N.	15	4 p.m. (5th).	S.W. by S.	43	—
Holyhead	7 p.m. (5th).	S.W.	10 p.m. (5th).	W.S.W.	41	8	9 a.m. (6th)	W.S.W.	14	Midngt. (5th).	W.S.W.	45	—
Yarmouth	4 a.m. (6th).	W.	—	—	—	—	Noon (6th)	W.N.W.	8	10–11 a.m. (6th).	W.N.W.	33	—

This gale in many places followed so closely on the last one that it is difficult to say to what extent they belong to the same depression, whose direction had changed after at first passing northwards.

By 8 a.m. on the 6th the centre of the depression was over the North Sea, about half-way between the coasts of England and Denmark. The wind veered to N.W. at all our eastern stations, and moderated, while strong westerly and south-westerly breezes were reported from the Netherlands. The easterly gale in Scotland subsided, but a N.E. gale commenced in the Skager Rack, and fresh easterly breezes continued in the west of

Norway. Rain fell everywhere, especially in Scotland, and the weather seemed very unsettled. The recovery of pressure which succeeded was rapid, and continued everywhere until about midnight.

Feb. 7. All trace of the recent disturbance had disappeared from our coasts, but the wind was still northerly on the eastern shores of the North Sea, with very cold weather and a rapid rise of the barometer. At Oxö a gale was blowing from N.N.E. In our islands the wind had backed to S.W. and S. again, and freshened, except on the Channel coast, reaching the force of a gale in one or two places, as will be seen from the following table.

Observatories. February 7th.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours, the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	6 a.m. (7th).	S.W. by S.	—	—	—	—	3 p.m. (7th)	S.W.	9	11 a.m. (7th).	S.W. by S.	39	—
Aberdeen -	10 a.m. (7th).	S. by E.	—	—	—	—	7 p.m. (7th)	S. by W.	9	11 a.m. & 4 p.m. (7th).	S. by E.	35	—
Sandwick -	Midngt. (6th).	S.S.E.	11 a.m. (7th).	S.S.E.	48	7	7 p.m. (7th)	S.	19	2 p.m. (7th).	S. by E.	52	—
Yarmouth -	1 p.m. (7th).	S.E.	5 p.m. (7th).	S.E. by S.	40	3	1 a.m. (8th)	S.S.E.	12	6 p.m. (7th).	S.E. by S.	41	—

At Holyhead, also, the wind freshened to 34 miles an hour from S.E. by S. at 10 a.m. on the 7th, for a short time. Temperature rose somewhat, but the barometer had begun to fall again. The weather was overcast, hazy, and wet, a thick fog prevailing at Falmouth.

Feb. 8. The barometer had fallen briskly in the west of Norway and north of Scotland, but in Ireland and England the change was less. During the day a depression, which lay over the north of Scotland at 8 a.m., passed to the south-eastward between the Scotch and Norwegian coasts, but gradients being slight on its western side little wind was produced in these islands, beyond a strong breeze from W. at Falmouth in the evening. Strong south-easterly and easterly gales blew on the coasts of Norway, with snow. Hamburg reports a slight south-west gale. Temperature at first rose in England, but fell again as the wind veered northwards. The weather was very unsettled, with squalls of snow and rain in most places, but chiefly in the north-west.

At 8 a.m. on the 9th the centre of the disturbance was over the south-eastern part of the North Sea, but readings were rather low to the northward of Scotland and west of the Scandinavian coast. The gale still blew from E.S.E. on the north-eastern shores of the North Sea, while at our own stations moderate westerly and north-westerly breezes

were reported, with steadily increasing pressure. The rain had ceased except at some of our western and northern ports, and the sky was on the whole moderately clear. The relative distribution of pressure as late as at 6 p.m. is shown in Fig. 12, Plate VIII., and did not show much indication of an approaching storm, but since noon the barometer had begun to fall a little in Ireland. The decrease soon became general, and most rapid in the north-west, the wind backing southwards. Auroral light was seen in the north of Scotland at night.

Feb. 10. A deep depression had advanced from the north-westward during the night, and at 8 a.m. its centre lay over Holyhead, the barometric reading at this station being as low as 29·14 ins. (Fig. 13, Plate IX.) Gradients, both on its N.E. and S.W. sides, were very steep, from 0·12 in. to 0·14 in. per 50 miles. The wind rose to a strong gale, its direction veering or backing in the usual manner as the centre of the storm passed over the country north or south of the stations. At 8 a.m. the wind was north-westerly on our south-west coasts, and drew round, through S.W. and S. at the south-east stations, to S.E. in the north-east of England. The gradient on its north-west side being very slight, the only winds reported in that district were light airs from E. and N.E. The storm travelled fast, its centre passing very near Kew at about 3 p.m., and the subsequent recovery of the barometer was rapid everywhere, except at Valencia. The following are the chief particulars noted from the anemometrical records.

Observatories. February 10th, 1871.	Velocity. 30–40 Miles per Hour.		Velocity. Exceeding 40 Miles per Hour.				Velocity. Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	10 p.m. (9th).	S. by W.	1 a.m. (10th).	S.W.	43	13	4 p.m. (10th)	N.N.W.	18	10–11 a.m. (10th).	W.N.W.	46	—
Aberdeen -	7 a.m. (10th).	S.S.E.	9 a.m. (10th).	S.E. by S.	42	2	2 p.m. (10th)	S.S.E.	7	11 a.m. (10th).	S.E. by S.	43	—
Sandwick -	10 a.m. (10th).	S. by E.	—	—	—	—	5 p.m. (10th)	S.	7	10 a.m. & 2 p.m. (10th).	S. by E.	34	—
Falmouth -	4 a.m. (10th).	S.S.W.	7 a.m. (10th).	W. by N.	49	15	Midnt. (10th)	N. by W.	20	1 p.m. (10th).	W. by N.	63	—
Holyhead -	3 a.m. (10th).	S.	4 a.m. (10th).	S.S.E.	50	15	9 p.m. (10th)	N.E.	18	8 a.m. (10th).	W. by N.	71	"Veered" round from S. to W., N., and N.E.
Stonyhurst -	10 a.m. (10th).	E. by N.	—	—	—	—	3 p.m. (10th)	N.E. by E.	5	Noon (10th).	E. by N.	35	—
Alnwick Castle	9 a.m. (10th).	S.E.	—	—	—	—	3 p.m. (10th)	E. by S.	6	11 a.m. & 1 p.m. (10th).	S.E. by E.	34	—
Kew - -	7 p.m. (10th).	N.N.E.	—	—	—	—	11 p.m. (10th)	N.E. by N.	4	8 p.m. (10th).	N.E. by N.	36	—
Yarmouth -	6 a.m. (10th).	S.E. by S.	7 a.m. (10th)	S.E.	52	21	10 a.m. (11th)	E.	28	7 p.m. (10th).	E. by N.	64	—

At Falmouth a very singular interruption of the barometric fall had occurred at 6 a.m., some irregularity being shown at Armagh and Kew also, but not to nearly so great an

extent as at Falmouth, where, too, the recovery, after it set in, was very unsteady. At 2 p.m. the gale was extremely heavy from S.E. on our north-east coast, and from N.W. at the south-western stations, with a tremendous sea; and from the log of the S.S. "Wisconsin," Capt. Williams, it appears that a similar gale, but less violent, was felt about 120 to 150 miles west of Valencia, in the morning, but subsided after noon. Rain was general, but not heavy, except on our west coasts, and snow fell at the eastern stations.

The Wreck Returns furnished to the Board of Trade show that this storm was the most destructive to shipping which was felt on our coasts during the year 1871. This fact is in great measure attributable to its suddenness.

Feb. 11. The depression of yesterday had apparently passed to the south-eastward over the continent, and from want of continental information its further progress cannot be traced. Strong north-easterly breezes continued on the south-east coasts, where a sharp frost had set in, but an elongated anti-cyclone having appeared over the North Sea and the east of England, light S.W. winds had again appeared in the west and north. Temperature fell everywhere, continuing very low in the east, and cloudy weather was general. The barometer had already begun to fall again in Ireland at 8 a.m., and by noon this motion was felt at all the observatories but Kew. In the afternoon the wind rose to a moderate gale from S. at Valencia, quickly extending to most of the western and northern parts of the kingdom, and accompanied by rain and snow in Scotland.

The following are the chief features of the wind as shown instrumentally.

Observatories. Feb. 11 & 12, 1871.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	10 a.m. (11th).	S.E. by S.	1 p.m. (11th).	S.S.E.	43	14	5 a.m. (12th)	S.W. by S.	19	8 p.m. & 10 p.m. (11th).	S.	48	—
Armagh -	7 p.m. (11th).	S. by E.	—	—	—	—	4 a.m. (12th)	S.	9	10 p.m. (11th).	S.	33	—
Aberdeen -	11 p.m. (11th).	S. by E.	—	—	—	—	1 p.m. (12th)	S.	14	4 a.m. (12th).	S. by E.	36	—
Sandwick -	1 a.m. (12th).	S.S.E.	5 a.m. (12th).	S.S.E.	45	3	3 p.m. (12th)	S.	14	5 a.m. (12th).	S.S.E.	47	—
Falmouth -	9 p.m. (11th).	S. by E.	—	—	—	—	10 a.m. (12th)	S. by W.	13	6 a.m. (12th).	S.	35	—
Holyhead -	3 p.m. (11th).	S. by E.	7 p.m. (11th).	S.S.E.	51	16	2 p.m. (12th)	S. by E.	23	2 a.m. (12th).	S. by E.	58	—
Stonyhurst -	9 a.m. (12th).	S.E. by S.	—	—	—	—	1 p.m. (12th)	S.S.E.	4	11 a.m. (12th).	S. by E.	34	—
Alnwick Castle	7 a.m. (12th).	S.	—	—	—	—	Noon (12th)	S.	5	7 a.m. (12th).	S.	36	—
Yarmouth -	Midngt. (11th).	S.E. by S.	—	—	—	—	8 p.m. (12th)	S.	20	6 a.m. (12th).	S. by E.	34	—

At Hawsker, near Whitby, a tremendous snow storm occurred, and the cold was severe.

Feb. 12. The barometer had fallen 0·7 in. on our north-west coasts, and the isobars ran from south to north between Scotland and Norway, the gradient from Skudesnaes to Wick being 7. The gale was felt chiefly on our western and northern coasts, though fresh and gusty breezes were general. Temperature rose except over the North Sea; at Oxö the thermometer stood at 26° below freezing point at 8 a.m. Rain fell in the west, more than an inch at Valencia, and snow in Norway and at Aberdeen. At night a bright aurora was seen in the west, as well as by Capt. D. Smith of the "Wiltshire," 250 miles to the south of Cape Clear.

Feb. 13. A very general recovery of pressure had taken place, accompanied by the veering of the wind towards W. or N.W. in most places, and its diminution in force; but a temporary reduction of pressure had taken place in Norway, and a fresh E.S.E. gale had set in. During the day this subsided, and pressure recovered by next morning. A slight concavity in the Armagh barogram in the afternoon was accompanied by a renewed increase of the southerly winds in Ireland; and a second slight diminution, shown chiefly by the Valencia barogram on the afternoon of the 14th, produced a southerly breeze which reached a velocity of 43 miles at Valencia at 4 p.m., 40 miles at Holyhead both at 3 p.m. and 8 p.m., and over 30 miles at Alnwick Castle and Sandwick later in the day.

From this time till the 18th readings were very regular, and the weather finer and warmer than it had been, with S. and S.W. winds. After the 16th they freshened and became rather squally, about which time the barometer began to be unsteady in the north, while it rose in the south (see Plate X.). On the 17th clouds increased considerably, some rain fell, and the weather was foggy in several places, while the southerly wind rose to a strong breeze at Valencia and Holyhead at night.

On the 18th pressure began to give way slowly, and the southerly wind began to increase at our western stations, reaching a velocity of 40 miles at Valencia and exceeding 30 miles at Holyhead; while the wind rose at Sandwick to that of 42 miles from W. at noon, and blew very hard from the south-westward at Alnwick Castle, where the high velocity of 60 miles an hour was registered at 8 a.m., the wind having risen in two hours from a moderate breeze. These local squalls were apparently owing to some disturbance taking place off the Norwegian coast.

Feb. 19. A rather brisk fall of the barometer was in progress throughout these islands and the south of Norway. The wind again freshened from the southward, especially in Ireland and the west of England, where it blew a fresh gale, as will be seen by the following table.

Observatories.	Velocity, 30–40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	10 p.m. (18th).	S. by E.	11 p.m. (18th).	S. by E.	44	7	10 p.m. (19th)	W. by S.	24	1–2 p.m. (19th).	S. by E.	50	The fall of the barometer was checked considerably during this lull (6 to 10 a.m.), see Plate X.
			10 a.m. (19th).	S.	45	8							
Falmouth	4 p.m. (19th).	S.W. by S.	9 p.m. (19th).	S.W. by S.	41	2	1 a.m. (20th)	W. by S.	9	9 p.m. (19th).	S.W. by S.	41	—
Holyhead	2 a.m. (19th).	S. by E.	7 a.m. (19th).	S.	40	2	Noon (20th)	W. by S.	34	10 p.m. (19th).	S.S.W.	49	—
			7 p.m. (19th).	S.	44	6							

In the night a depression travelled across Scotland to the North Sea. In its rear the barometer rose rapidly, and the wind, veering north-westward, again blew stiffly, exceeding 30 miles an hour at all the observatories in Great Britain.

Feb. 20. The centre of the depression was off the E. of Scotland (Fig. 14, Plate XI.), the wind blowing a fresh to strong breeze round it. Temperature was very unsteady on our coasts, but had not decreased much. Rain had been general, and continued in nearly all parts of our islands at different times in the day. The recovery of pressure from this disturbance did not proceed steadily in the north of Great Britain, being very much retarded at Glasgow and Aberdeen in the evening, and the barometer even fell slightly at Stonyhurst towards midnight. At Aberdeen the wind backed temporarily to W.S.W. and fell very light, but no such change of direction is shown at either Glasgow or Stonyhurst, though at the latter observatory it was very light and unsteady in the early hours of the 21st. At Holyhead, however, things were different. At 7 p.m. (20th) the velocity rose above 30 miles from W. by N., and by 2 a.m. (21st) reached a maximum of 64 miles from W.N.W., and continued to blow hard all the morning as the wind veered slowly northwards. At Falmouth a considerable freshening occurred a few hours later, the maximum reported being 40 miles from N.N.W. at 10 a.m.

By 8 a.m. on the 21st the recovery had recommenced on all coasts, being most rapid in the north. The barometer was highest in Ireland, but there were two distinct regions of lower pressures, viz., over Holland and over central Norway, in each of which the readings were about 0·7 in. lower than at our western stations. Moderate northerly breezes blew in Scotland and Ireland, fresh N.N.W. winds in England, but a N.N.W. gale in St. George's Channel. In the Netherlands the wind was westerly, while in the Skager Rack it was from E.N.E., but at the same time blew hard from S.W. at Skudesnaes and Christiansund. Some rain had fallen in most places, and snow at the last-named station. At night much lightning was seen at Nairn.

From this date till the 25th the weather in the greater part of England and Ireland

was much more quiet. Temperature was higher after the 22nd, on which night auroral streamers were seen in the north. The wind was generally light and variable, and very little rain was reported. In Scotland and Norway, and at Hamburg, however, conditions were very different. There gradients for westerly winds were steep and westerly gales frequent. The great unsteadiness of pressure is shown by the Aberdeen barogram (Plate XI.). In the Orkneys the velocity of the wind was above 30 miles an hour from 5 p.m. of the 21st till 9 a.m. of the 25th—*i.e.* for 88 hours—almost ceaselessly, and for 68 hours it exceeded 40 miles; the maximum force reached being 62 miles from W.N.W. at 11 a.m. on the 23rd. At the northern stations also strong westerly breezes were reported, the maxima being W. by N. 55 miles at Aberdeen at 1 a.m. on the 23rd; W. by S. 44 miles at Glasgow both at 6 p.m. 22nd and 1 a.m. 25th; 45 miles from the same direction at Stonyhurst at 1 p.m. 23rd, and an equal velocity from W. by N. at Alnwick Castle at the same hour.

Feb. 25. The barometer was still lowest in Scandinavia, but had begun to fall on our south-west coasts; and it is worth observing how quickly after the commencement of this south-western decrease the Scotch readings began to recover from their recent deficiency. The wind backed to W. at the western stations, with an increase of cloud, while in the north-east the sky cleared. In the afternoon a very singular increase of wind to a fresh gale occurred locally at Shields, but soon subsided. Temperature changed very little. At night the fall of the barometer in the south-west became more marked.

At 8 a.m. on the 26th a depression was approaching the south coast of Ireland, where readings had decreased half an inch since the previous morning, with fresh to strong S. and S.E. breezes, and foggy weather. Temperature rose fast in the south-west of England and north-west of France. On our south coast the wind was East, light from S. in the north of Great Britain, and fresh from W. in Norway, where the barometer had fallen again to about the same level as at 8 a.m. on the 24th. A bright aurora was seen in Scotland at night, and rain gradually set in on all our coasts.

On the morning of the 27th readings were uniformly rather low at the northern stations, the barometer having fallen 0·5 in. in Scotland; but over the S. of England gradients were steep. The south-westerly wind had become strong in the west, south, and south-east, reaching a velocity of 45 miles from S.S.W. at Valencia at 6 p.m., 48 miles from S.W. at Falmouth by 10 p.m., while 53 miles from S. by W. had already been registered at Holyhead at the previous midnight. At Stonyhurst some very singular changes occurred in the direction of the wind, which *backed* completely round the compass twice between 8 p.m. 26th and 2 a.m. 28th. At some times it was very light, but at others (notably on the 27th) fresh and gusty from the south-westward. The oscillations of pressure, too, at the English and Irish observatories were sudden and frequent, more so than can be properly investigated in a summary like this, the wind veering and backing meanwhile, and apparently indicating the passage of some local depressions. None of these appear in the Scotch barograms, where only a large concavity is shown, commencing at about midnight of the 25th and not terminating till the end of the month.

Feb. 28. Pressure had risen considerably except on the south and east shores of the North Sea. The barometer, though highest in Spain and the south-west of France, was also high over Scotland, a band of rather lower pressures running between these two elevations; while the minimum readings were apparently over Denmark. Moderate N. and N.E. winds prevailed in the northern regions, drawing round to W. in the south of England; while southerly breezes prevailed in Ireland and the west of France. Temperature fell rapidly in the west of Norway, and also on our east coasts, but to a less extent. The weather became finer, but rain continued in the west.

March 1. A very rapid rise of the barometer had taken place over Norway, the North Sea, and Holland; while on our own coasts the change, though considerable, had been less. A very slight fall had taken place in the south-west of France. The highest readings were in the Netherlands, whence gradients to the westward and north-westward were rather steep. A moderate easterly breeze prevailed on our southern coasts, drawing into S.E. and S. in the W. and N., where it was fresh. At Valencia a velocity of 40 miles an hour was registered several times, and at Falmouth a strong breeze prevailed during the greater part of the day. From Christiansund a stiff S.W. gale was reported. Fog and heavy rain prevailed in the S.W., an inch having fallen at Valencia during the previous day. Some rain had fallen elsewhere, and the weather was cloudy generally.

The increase of pressure noticed above was soon succeeded by a diminution, especially in Norway; and by 8 a.m. on the 2nd, gradients were reduced on our western coasts, and the wind moderated in most places. At Valencia, nevertheless, it continued rather strong, and reached 40 miles an hour two or three times in the afternoon. The barometer was falling everywhere. A little more rain had fallen on our western and northern coasts, but in the S. and E. of Great Britain the weather became fine and bright. At night auroral streamers were seen at Aberdeen.

March 3. The barometer had continued to fall steadily, the highest readings being still found at the south-eastern stations, and the lowest in the west and north. The direction of the wind continued almost unchanged, and seems to have been moderate in force, except at Valencia. There, however, it again freshened from S.E., and attained a velocity of 40 miles at 3 and 4 p.m. Temperature rose generally; and though the weather in the north had been cloudy with a little rain, elsewhere it was fine and clear, as will be seen by the large diurnal range of temperature shown at most of the observatories (Plate XIII.) most notably at Kew.

The decrease of pressure continued generally until the morning of the 4th, rather more rapidly in the south-west than elsewhere; but during the day the change was arrested for a time at Falmouth and Valencia, and a similar phenomenon occurred later on at the other English observatories. In the north, however, the fall continued, and the wind consequently veered more towards S. and S.W. generally, and again reached the

velocity of 40 miles from S.S.W. at Valencia at 6 p.m. At Stonyhurst and Glasgow the wind had been extremely variable on the 2nd and 3rd, but now settled into a steady southerly breeze. Temperature fell in the north; the weather became more cloudy generally, and rain set in over the south of Ireland.

At 8 a.m. on the 5th the barometer was still highest in the S.E. and lowest in the N.W., gradients for south-westerly wind being steep over all our western and northern coasts, where strong southerly winds were reported. At Valencia the velocity had already reached 40 miles an hour, as will be seen further on. At this observatory the mercury began to fall rapidly a little before noon, followed, in less degree, by that at the other observatories, and the southerly wind rose to a strong gale in the S. of Ireland; similar weather was experienced at sea as far west as long. 17° W., and as far S. as lat. 44° N. also.

March 6. An extensive and deep depression was evidently lying some little distance to the westward of the west coast of Ireland, the fall of the barometer since the previous morning having exceeded 0·6 inch at Valencia, where the reading was below 29 ins. A strong and squally southerly gale was blowing on all our south-west coasts, accompanied by rain; and fresh to strong southerly breezes with cloudy weather at our other stations and in the W. of France. Temperature had fallen in the east and north of our islands, but was rising in the south of Norway. The following is the tabular statement drawn up from the anemograph records as usual.

Observatories. March 4–6.	Velocity, 30–40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours, the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	9 p.m. (4th).	S.S.E.	Mdngt. (4th).	S.	45	27	2 p.m. (6th).	S.	41	9 p.m. (5th).	S.E. by S.	54	Wind subsequently rose to 36 miles from W.N.W. at 7 p.m. 6th.
Glasgow -	6 a.m. (5th).	S. by W.	—	—	—	—	6 p.m. (5th).	S.	12	Noon (5th).	S. by W.	37	Velocity again increased to 33 miles from S.S.E. at noon of 6th.
Sandwick -	2 a.m. (6th).	S.	10 a.m. (6th).	S. by E.	43	3	5 p.m. (6th).	S. by E.	15	10 a.m. (6th).	S. by E.	47	——
Falmouth -	8 a.m. (5th).	S. by W.	9 a.m. (6th).	S. by E.	42	3	2 p.m. (6th).	S.	30	11 a.m. (6th).	S. by E.	45	——
Holyhead -	4 p.m. (4th).	S. by E.	6 a.m. (5th).	S.S.E.	45	40	1 a.m. (7th).	S.	57	9 a.m. (6th).	S.E. by S.	54	Wind then veered quickly to N.W., whence it blew with a velocity of rather more than 40 miles for two hours at 3 and 4 a.m. 7th.

At Stonyhurst a velocity of 30 miles an hour from S.S.E. was slightly exceeded several times on the 6th, at Alnwick Castle from S.S.W. and S. on the 5th and 6th, and was reached at Yarmouth from S.S.E. at 2 p.m. on the 6th. The depression in the Valencia barogram is very regular and gradual; and is still less abrupt at our other

observatories. By the afternoon a temporary recovery had begun in the south-west, and the wind veered quickly towards W., subsided slowly. The rain extended to the southern parts of England, and thunder was reported from Plymouth.

Early on the morning of the 7th the wind backed suddenly to S. again at Valencia, and a faint tendency to fall is shown in the barogram. At 8 a.m. pressure varied from 30 inches in the S. of France to 29·4 ins. in the north of Scotland, and 29·3 ins. at Christiansund. Apparently there was also a *slight* depression off the S.E. coast of Scotland, which produced some local deflections in the general westerly current of air then prevailing over the United Kingdom, while fresh southerly breezes were reported on the eastern shores of the North Sea. Shortly after 9 a.m. the barometer again fell rapidly in Ireland, and during the day a depression passed from S.W. to N.E., across Ireland and Scotland, towards Norway.

March 8. At 8 a.m. the centre of the disturbance was near the Shetland Isles, and a very sudden recovery of pressure had taken place over the W. and S. of the British Isles, accompanied by the veering of the wind to W. and N.W. The gale, though general, had not been severe, except on our western coasts, as will be seen from the following table:—

Observatories. March 7-8, 1871.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	10 a.m. (7th).	S. by E.	11 a.m. (7th).	S. by E.	48	8	2 a.m. (8th).	W.N.W.	16	2 p.m. (7th).	S.S.E.	53	—
Armagh -	3 p.m. (7th).	S. by W.	—	—	—	—	Midngt. (7th).	W. by S.	9	6 & 7 p.m. (7th).	S.	38	—
Glasgow -	9 p.m. (7th).	S. by E.	—	—	—	—	5 a.m. (8th).	W. by S.	8	3 a.m. (8th).	W.	40	For one hour only.
Sandwick -	8 p.m. (7th).	S.	10 p.m. (7th).	S. by E.	41	3	5 p.m. (8th).	W.S.W.	21	7 a.m. (8th).	W. by N.	53	—
			6 a.m. (8th).	W. by N.	47	5							
Falmouth -	3 p.m. (7th).	S.S.W.	—	—	—	—	5 a.m. (8th).	W.	14	9 p.m. (7th).	S. by W.	40	Velocity of 30 miles was slightly exceeded on several other occasions (from W.S.W.) during the day.
Holyhead -	1 p.m. (7th).	S.	3 p.m. (7th).	S.	51	9	8 a.m. (8th).	W.S.W.	19	9 p.m. (7th).	S.S.E.	50	Velocity of 30 miles slightly exceeded again in evening.
Stonyhurst -	10 p.m. (7th).	S. by E.	Mdngt. (7th).	S. by E.	43	2	2 a.m. (8th).	S.W.byW.	4	Midnight (7th).	S. by E.	44	Do. do. at 2 p.m.
Alnwick Castle	4 a.m. (8th).	S.W.byW.	Noon (8th).	W. by S.	44	6	6 p.m. (8th).	S.W.byW.	14	2 p.m. (8th).	W.S.W.	50	Wind continued fresh next day.
Kew - -	Midngt. (7th).	S. by W.	—	—	—	—	3 a.m. (8th).	S.S.W.	3	Midnight (7th).	S. by W.	33	—

At Aberdeen the velocity exceeded 30 miles an hour, from S., at 10 and 11 p.m., while at Yarmouth this velocity was only reached once, on the morning of the 8th. Rain had fallen, except in the north-east; hail at Valencia and Falmouth, and during the day snow fell in Scotland. Lightning had been seen on the evening of the 7th at Scarborough.

Temperature was singularly unsteady at the western stations. The rise of the barometer was somewhat interrupted at Falmouth and Kew for several hours in the afternoon, a similar but modified effect being noticed at all the other observatories also. At about 10 p.m. the recovery terminated rather suddenly at Valencia, and a fresh fall of the mercury began, the other observatories soon repeating it.

At 8 a.m. on the 9th the highest readings were in the N.W. of France, while the lowest were on the coast of Norway (*see* Plate XIV., Fig. 15). At about this hour the fall of the barometer became extremely rapid at Armagh, and a remarkably deep depression passed over the south of Scotland and the north of England and Ireland. With a very sudden rise of temperature, the wind sprung into a strong gale from S. and S.W. on our western coasts, with squalls and heavy rain, the extreme suddenness of the change in temperature being very conspicuously shown by the Armagh and Stonyhurst thermograms, the curve at the former station being almost the exact converse of the barogram. The change in vapour tension at all the observatories is very noticeable. Unhappily the gas went out at Glasgow at this very time, and the three photographic curves are consequently lost until the worst of the disturbance had passed over; but it is remarkable how little wind was felt there. At 2 p.m. (Fig. 16), the central area of the gale was over the S.W. of Scotland, having passed south of Glasgow,* and the S. and S.W. gale spread over the whole of England, with rain. The disturbance continued to travel eastwards, and at 6 p.m. was to the eastward of our north-east coasts, the wind veering towards W. and N.W., and moderating quickly as it passed off, the barometer rising with extreme rapidity in the north-west.

The following is the table of anemometrical results for this gale.

Observatories, March 9, 1871.	Velocity, 30–40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity, Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	4 a.m. (9th).	S.	5 a.m. (9th).	S. by E.	51	8	2 p.m. (9th)	W.N.W.	10	7–10 a.m. (9th).	S.S.W. & S.W.	56	—
Armagh -	10 a.m. (9th).	S. by E.	—	—	—	—	4 p.m. (9th)	W.N.W.	6	10 & 11 a.m. (9th).	S.S.W.	35	—
Falmouth -	10 a.m. (9th).	S.S.W.	Noon (9th).	S.S.W.	50	5	7 p.m. (9th)	W. by N.	9	2 & 3 p.m. (9th).	S.W.	51	—
Holyhead -	6 a.m. (9th).	S.	8 a.m. (9th).	S. by E.	56	10	8 p.m. (9th)	W.	14	11 a.m. (9th).	S. by E.	68	Velocity exceeded 60 miles (from S.) for 4 hours in the morning, and from W. for 1 hour in the afternoon.
Stonyhurst -	11 a.m. (9th).	S. by E.	Noon (9th).	S.S.E.	42	7	8 p.m. (9th)	W. by N.	9	5 p.m. (9th).	W.	49	—
Kew - -	Noon (9th).	S.S.W.	2 p.m. (9th).	S.S.W.	41	3	7 p.m. (9th)	S.W.byW.	7	4 p.m. (9th).	S.S.W.	42	—
Yarmouth -	2 p.m. (9th).	S. by W.	—	—	—	—	10 p.m. (9th)	W.	8	5 p.m. (9th).	S.S.W.	42	For 1 hour only from each of these directions.
										8 p.m. (9th).	W. by S.		

* See Plate XIV., where it is shown that the wind at Glasgow "*backed*" round, rapidly, from S. to E., N., and W., between 11 a.m. and 5 p.m.; none of the southerly *gale* being felt there.

At Alnwick Castle the wind freshened to 38 miles from S. by E. at 2 p.m., then lulled, *veered* to W., and again freshened from that quarter to a strong breeze several times next day. At Aberdeen and in the Orkney Islands the disturbance was at first hardly felt, and only fresh, or rather strong, westerly breezes blew on the 10th, after the depression had passed eastwards from our coasts.

March 10. The depression of yesterday lay over the North Sea, round which the wind was circulating, causing moderate westerly breezes on our coasts, but blowing hard at Hamburg. A *second* centre of disturbance was apparently advancing eastwards towards the west coast of Norway,* where the barometer was falling, and a severe southerly gale had set in at Christiansund. Although pressure had increased considerably in Ireland, the change had not been regular or uniform anywhere, as will be seen on referring to the barograms for the early hours of the 10th. A thunderstorm had occurred at Thurso. Rain had been very general, and heavy in the N.W. The steam ship "Erik," Captain Walker, had experienced a strong N.W. gale at 2 a.m. when a little to the eastward of the Shetland Islands. In the afternoon a new fall of the barometer had commenced in Ireland, and at 7 p.m. aurora was seen at Stonyhurst.

March 11. Barometrical readings on our western and north-western coasts showed considerable reduction, and the wind had again backed to S. or S.W. in our islands, blowing strongly, with rain, in the west, and at Helder. At Valencia the velocity had amounted to 40 miles an hour through the greater part of the night, and exceeded 30 miles at the other western observatories. Very disturbed weather was approaching us from the westward, and in the morning the gale set in at Valencia.

At 8 a.m. on the 12th a very extensive and rather complicated depression lay off the west of the British Isles, where the barometer had again fallen half an inch. The weather was damp and cloudy. A strong southerly gale, with rain, prevailed over Ireland, the Irish Channel, Scotland, and the north of England, and extended during the day to nearly all parts of the country; but its chief strength was felt in the west and north-west. South-easterly winds were reported from Norway, and the "Erik," in latitude 64° N. and on the meridian of Greenwich, had a strong easterly gale with continuous rain, but the temperature was *not* low. The disturbance was altogether on a larger scale than that of the 9th and 10th, and apparently travelled slowly. The usual analysis of the anemometrical indications is given herewith.

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* This probably accounts for the fact that neither at Sandwick nor Aberdeen did the wind draw into N., nor at all towards N., as the centre of yesterday's storm passed S. of them.

Observatories. March 11 & 12, 1871.	Velocity, 30–40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity, Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	7 a.m. (11th).	S.S.W.	9 a.m. (11th).	S. by W.	49	21	7 a.m. (12th)	S.W.	24	5 a.m. (12th).	S.	58	—
Armagh -	2 a.m. (12th).	S. by W.	—	—	—	—	11 a.m. (12th)	W.S.W.	9	4 a.m. (12th).	S. by W.	38	—
Glasgow -	4 a.m. (12th).	S.	7 a.m. (12th).	S. by W.	46	7	3 p.m. (12th)	S.W.	11	10 a.m. (12th).	S.	48	—
Sandwick -	6 a.m. (12th).	S.	—	—	—	—	1 p.m. (12th)	S.W.	7	10 a.m. (12th).	S.	48	For one hour only.
Falmouth -	4 a.m. (12th).	S.	11 a.m. (12th).	S. by W.	41	3	6 p.m. (12th)	S.W.	14	Noon (12th).	S. by W.	42	—
Holyhead -	11 p.m. (10th)	S.	Midnt. (11th).	S.	52	17	4 p.m. (13th)	S.W.	65	11 a.m. to 1 p.m. (12th).	S. by E.	58	Wind lulled very suddenly after 4 p.m. 12th, when it began to veer towards S.W.
Stonyhurst -	9 a.m. (12th).	S. by E.	4 p.m. (12th).	S.	42	3	7 p.m. (12th)	S.W.	10	4 p.m. (12th).	S.	44	—
Alnwick Castle	10 a.m. (12th).	S.S.W.	—	—	—	—	6 p.m. (12th)	S.S.W.	8	2 p.m. (12th).	S.S.W.	38	—

At Aberdeen and Kew the velocity slightly exceeded 30 miles from S. by W. for a few hours near mid-day of the 12th; no gale was felt at Yarmouth. At Holyhead it will be observed that all the disturbances from the 10th to the 12th merged into one continuous gale, but no great force was felt until after midnight of the 11th. The minimum reading was reached first at Valencia, at about 5 a.m., but at all places the depression of the barogram is very shallow.

On the morning of the 13th the western barometers had risen in a marked manner, and the centre of the storm was to the northward. The recovery was steady, and was accompanied by a decrease of temperature and veering of the wind to N.W.; but in the E. and S.E. the wind was yet strong from S.W., and at Alnwick Castle it rose to rather more than 40 miles from W.S.W. for several hours about mid-day. Rain had again fallen on all coasts, accompanied by hail and lightning in the N.W. With some interruptions the barometer continued to rise till the 15th. The weather gradually became finer and colder, a sharp frost occurring in the N. and N.E. on the night of the 14th. Some snow fell in most parts of the country.

March 15. At 8 a.m. the relative distribution of pressure was as follows: A region of high pressure, exceeding 30·1 ins., lay to the south-westward of the United Kingdom and over the Bay of Biscay, whence readings decreased in a north-easterly direction to 29·3 ins. at Christiansund; light westerly breezes prevailed in Scotland, and fresh N.W. winds in Ireland and England, blowing with a velocity of 30 to 40 miles an hour at Holyhead from 9 p.m. 14th to 7 a.m. 15th. A sudden change now occurred. The barometer fell rapidly, commencing at the Irish stations, and during the evening a

deep, clearly defined depression showed itself in the N.W., travelling quickly in a south-easterly direction.

On the morning of the 16th the centre was a little to the southward of London, apparently over part of Kent and Sussex (*see* Fig. 17, Plate XV.) The minimum reading at Kew occurred at 6 a.m. Gradients were steep on nearly all its sides, and the wind circulated cyclonically round the central area. A northerly gale blew on our western coasts, a westerly gale in the west of France, a severe south-westerly gale at Paris, and a south-easterly gale at Yarmouth. Only on its northern side does the wind seem to have been moderate; and it is worth observing that at this same time a hard W.S.W. gale was blowing at Christiansund, while the ship "Erik" in lat. 71° N., long. 1° W., had a "whole gale" from N.E. and N. all day, with hard frost, and snow, thus pointing to a second disturbance with its centre lying between her position and the shores of Norway. The following table shows, very inadequately, the details of the wind as felt at the observatories.

Observatories, March 15 & 16, 1871.	Velocity, 30–40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Falmouth	8 p.m. (15th).	S.W. by S.	3 a.m. (16th).	W.N.W.	44	4	Noon (16th)	N.W.by N.	16	5 a.m. (16th).	W.N.W.	48	This record is far below what it should be, the instrument having been damaged in the gale.
Holyhead	5 p.m. (15th).	S.S.W.	8 p.m. (15th)	S. by E.	50	2	4 p.m. (16th)	N. by W.	23	5 a.m. (16th)	N. by W.	63	Wind lulled to 25 miles at 11 p.m. 15th, as it began to veer from S. towards W., and subsequently rose again rapidly as it drew into N.W.
			2 a.m. (16th)	W.N.W.	51	9							
Yarmouth	5 a.m. (16th).	S.S.E.	7 a.m. (16th).	S.E. by S.	43	3	Noon (16th)	E.	7	8 a.m. (16th).	S.E.	44	Wind "backed" slowly round.

At Valencia the anemometer registered velocities of a little above 30 miles from S.S.W. at noon on the 15th and from N.W. at noon on the 16th; Armagh recorded a similar value from N.W. and N.N.W. at 1 and 2 a.m. 16th. The wind at the northern observatories was light from the north. At Kew the wind exceeded 30 miles an hour from N.E. at about noon, a remarkable lull having occurred at the time of the registration of the minimum pressure, the wind subsequently veering quickly from S. to N.N.E. Temperature first rose with the southerly wind, but fell again as the centre passed southwards, and a considerable quantity of rain was reported from all parts of the country, with snow in the W., N., and S.E.

March 17. The disturbance of the past two days had disappeared, and over England and Ireland the rising pressure was accompanied by finer and colder weather. To

the northward of Scotland, however, some new disturbances occurred, which drew the wind into W. again on our northern coasts, and it freshened to a strong breeze at Sandwick and Holyhead, with a rise of temperature. But the whole thing was slight in these islands, and passed on to Norway, producing a strong S.W. gale at Christiansund next morning.

From this time until the 20th pressure was very uniform on the Irish and English coasts, though decreasing slowly; but over Scotland and towards Scandinavia it was much lower, with unsettled weather. In France, also, pressure was less than in the United Kingdom. Temperature increased throughout the British Isles, and fine but rather cloudy weather was general, so that diurnal range of temperature was still small, except at Kew. About the 20th, however, clouds began to thicken, the western pressures gave way, and high southern with low northern readings became the prominent conditions of pressure, with the wind backing to S. in the west and freshening. At Valencia it rose to rather above 30 miles from the southward after noon, and also at Glasgow.

March 21. A slight depression had evidently passed north-eastwards not far from our western coasts in the previous 24 hours, from which readings were recovering at 8 a.m. Temperature had again risen, but the daily range was less distinct than on the previous few days, except in England. The wind was blowing freshly from the southward on our western coasts, reaching a velocity of 40 miles several times at Valencia, and even a little more at Holyhead, (but subsiding in the evening), and 30 miles at Armagh. On this disturbance passing off (which it had done by the next morning), very fine but hazy weather set in, continuing with some trifling exceptions till the end of the month. So far as the barometer is concerned, the chief features during this period were as follow:—By the 23d, a region of high pressure had formed over the eastern shores of the North Sea, readings varying from 30·4 ins. in the south of Norway to 29·9 ins. in the S.W. of our islands. This gave way considerably by the 25th (when pressure was very uniform), and was succeeded by the gradual establishment of high Scotch readings, which in their turn yielded slowly, and the southern barometers rose. On the morning of the 31st the south-westerly readings were highest, and as the barometer then fell fast in Norway the bad weather there began to extend to this country. The wind, which was at first south-easterly, became light and variable. After the 27th, moderate to fresh northerly and north-easterly breezes were felt, backing to N.W. by the 30th, and increasing from that quarter on the 31st. At Sandwick the wind rose to a slight gale several times after 6 p.m. on the 30th. Temperature was not high after the 26th, though prior to that day the weather had been warm, especially in the daytime. The sudden oscillation of temperature at Aberdeen on the 25th is very remarkable, where the fog, which had been very continuous, then cleared off for a time, and the thermometer rose most suddenly for a little while, and subsequently fell again with a return of the haze. The extent and regularity of the daily range of temperature (except at the Scotch observatories and Falmouth) is *very* considerable till the 27th, and even until the 30th, in Ireland and the west of Scotland.

Remarks.

Wind.—The total number of hours during which the wind blew with a velocity of 30 miles an hour or more, irrespective of direction, is shown for each observatory in each month, and for the whole quarter, in the following table:—

Observatory.	Jan.	Feb.	March.	Total.	Observatory.	Jan.	Feb.	March.	Total.
Valencia - -	168	203	222	593	Holyhead - -	234	†202	243	679
Armagh - -	27	9	44	80	Stonyhurst -	19	27	34	80
Glasgow - -	18	*53	‡47	118	Alnwick Castle -	45	72	93	210
Aberdeen - -	25	38	31	94	Kew - - -	7	6	20	33
Sandwick - -	121	200	149	470	Yarmouth - -	85	66	37	188
Falmouth - -	124	132	123	379					

* Clock stopped 4 a.m. to 10 a.m. 23rd; wind probably above 30 miles all the time.
† Do. 11 a.m. 8th to 10 a.m. 9th; wind light.
‡ Pencils not marking for 10 hours on 19th; wind light.

The result is very similar to that shown in the former tables. Holyhead has the largest number, Valencia, Sandwick, and Falmouth following, in the order mentioned, the smallest numbers being shown at the inland observatories, the least of all being at Kew.

Pressure.—

January.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·765	+ ·011	30·294	24th, 10 a.m.	?28·198*	15th, 10 p.m.	? 2·096
Armagh - -	29·747	+ ·028	30·357	24th, 11 p.m.	28·176	16th, 4 a.m.	2·181
Glasgow - -	29·732	— ·004	30·380	24th, 8 p.m.	28·313	16th, 4 a.m.	2·067
Aberdeen - -	29·613	— ·110	30·407	30th, 10 a.m.	28·411	16th, 2 p.m.	1·996
Falmouth - -	29·826	— ·146	30·339	12th, 11 p.m.	28·769	16th, 1 a.m.	1·570
Stonyhurst -	29·799	— ·014	30·341	27th, 11 a.m.	28·592	16th, 6 a.m.	1·749
Kew - - -	29·839	— ·099	30·286	13th, 2 a.m.	28·878	16th, 7 a.m.	1·408

* The lowest reading recorded by standard, the barogram having failed for a few hours (see Plate III.).

The barometer was on the whole higher than the average in Ireland, but lower in Great Britain, especially at Aberdeen and Falmouth. The maximum reading occurred

on the 24th at the western and north-western observatories (where, too, the maximum range was recorded), and the minimum readings took place in all parts of the kingdom during the depression of the 15th and 16th.

February.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·899	+ ·004	30·531	21st, 11 p.m.	29·042	3rd, 5 a.m.	1·489
Armagh - -	29·882	+ ·025	30·423	21st, 11 p.m.	29·189	5th, 2 p.m.	1·234
Glasgow - -	29·843	·000	*30·386	28th, midngt.	29·140	5th, 6 p.m.	1·246
Aberdeen - -	29·807	+ ·084	*30·441	28th, midngt.	29·200	20th, 7 a.m.	1·241
Falmouth - -	30·054	+ ·018	30·555	22nd, 11 a.m.	29·422	10th, 1 p.m.	1·133
Stonyhurst - -	29·942	+ ·039	*30·404	28th, midngt.	29·153	10th, 10 a.m.	1·251
Kew - - -	30·047	+ ·039	*30·470	22nd, 10 a.m.	29·237	10th, 3 p.m.	1·233

* These readings differ from those given in Appendix I., as these tables refer to civil not astronomical time.

In this month pressure was slightly above the average everywhere but in the west of Scotland, where it was at its normal height. The maximum was registered at some places on the 21st or 22nd, and at others on the 28th, while the minimum occurred in England on the 10th, at Armagh and Glasgow on the 5th, but at different dates elsewhere. The range at all stations was much smaller than in January.

March.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·944	+ ·070	30·588	29th, 11 a.m.	28·946	6th, 9 a.m.	1·642
Armagh - -	29·941	+ ·170	30·688	28th, midngt.	29·140	6th, 4 p.m.	1·548
Glasgow - -	29·898	+ ·182	30·611	28th, 10 p.m.	29·093	8th, 2 a.m.	1·518
Aberdeen - -	29·907	+ ·169	30·578	28th, 9 p.m.	29·016	8th, 5 a.m.	1·562
Falmouth - -	30·048	+ ·159	30·528	29th, 9 a.m.	29·380	6th, 10 a.m.	1·148
Stonyhurst -	29·986	+ ·142	30·574	28th, 9 p.m.	29·286	16th, 3 a.m.	1·288
Kew - - -	30·055	+ ·227	30·521	1st, 10 a.m.	29·252	16th, 7 a.m.	1·269

Readings were considerably above the average in March, especially at Kew and in the north. The maximum readings exceeded 30·6 ins. in the north-west, and, with the exception of Kew, were reported everywhere on the 28th or 29th. The range, though not excessive, was greatest in the west and north. At Valencia only was the minimum reading below 29 inches.

Temperature.— January.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	43·1	+0·1	51·3	6th, 3 p.m.	31·4	25th, 8 a.m.	19·9
Armagh - -	36·3	−3·3	49·2	6th, 2 p.m.	28·2	24th, midngt.	21·0
Glasgow - -	34·2	−3·1	46·5	6th, 3 p.m.	23·1	25th, 10 p.m.	23·4
Aberdeen - -	34·9	−1·2	45·3	14th, 9 a.m.	19·5	3rd, 8 p.m.	25·8
Falmouth - -	39·9	—	49·5	6th, 2 p.m. 10th, 4 p.m.	28·2	28th, 7 a.m.	21·3
Stonyhurst - -	32·4	−5·0	47·5	6th, 7 p.m.	16·3	4th, 10 a.m.	31·2
Kew - - -	33·9	−2·7	44·6	7th, 4 a.m.	19·2	1st, 7 p.m.	25·4

The weather in January was colder than the average except at Valencia, the deficiency having been greatest in the north-west of our islands. The highest reading was on the 6th or 7th at nearly all the stations, while the lowest occurred on different days in the various parts of the country, but on the 24th or 25th in Ireland and the west of Scotland. The range was greatest at Stonyhurst.

N.B.—The *average* temperatures with which the Kew observations are compared have been changed; the values now given being those for Greenwich for the 43 years ending December 1856. (See Report of the British Meteorological Society for 1857.) These monthly averages are derived from the same series of observations as the five-day averages with which the five-day means at Kew have hitherto been compared. We have still no standard of comparison for Falmouth.

February.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	47·9	+3·8	52·9	7th, 11 a.m.	37·0	2nd, 2 a.m.	15·9
Armagh - -	44·7	+4·0	54·0	19th, 2 p.m.	32·9	2nd, 7 a.m.	21·1
Glasgow - -	41·8	+3·7	51·9	19th, 2 p.m.	27·9	1st, noon.	24·0
Aberdeen - -	41·2	+4·0	56·3	25th, 1 p.m.	32·0	28th, 9 p.m.	24·3
Falmouth - -	46·7	—	54·5	18th, 1 p.m.	35·4	11th, 7 a.m.	19·1
Stonyhurst - -	41·5	+3·0	50·9	19th, 2 p.m.	27·3	11th, 7 p.m.	23·6
Kew - - -	43·0	+4·4	56·0	27th, 2 p.m.	25·6	11th, 8 a.m.	30·4

The weather in February was warmer than usual. The maximum occurred in the western parts of England and Scotland, and in the north of Ireland on the 18th or 19th, but the minimum was recorded in Ireland on the 2nd, in England on the 11th (the lowest of all being at Kew), and in Scotland on different days.

March.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - . -	47·7	+2·3	64·2	24th, 3 p.m.	34·3	15th, 5 a.m.	29·9
Armagh - -	44·3	+2·7	62·6	24th, 3 p.m.	25·6	15th, 5 a.m.	37·0
Glasgow - -	43·0	+3·4	61·0	25th, 2 p.m.	23·0	15th, 6 a.m.	38·0
Aberdeen - -	42·8	+4·0	62·9	25th, noon.	25·6	15th, 4 a.m.	37·3
Falmouth - -	46·3	—	58·7	27th, 2 p.m.	36·0	30th, 3 a.m.	22·7
Stonyhurst - -	44·3	+4·7	64·7	25th, 1 p.m.	?25·4	15th, 7 a.m.	39·3
Kew - - -	45·1	+3·7	66·6	24th, 2 p.m.	30·8	3rd, 6 a.m.	35·8

March also was a warm month, though the range of temperature was considerable; the maximum temperatures were high, and occurred towards the latter end of the month; and there is a marked difference between the minimum values at Valencia and Falmouth, and those at the other observatories.

The following table gives the result of a comparison of the five-day means of temperature at Kew with the Greenwich averages for 43 years, as in former parts of this report :—

Date.	Variation.	Date.	Variation.	Date.	Variation.
	°		°		°
Jan. 1–5 -	− 6·4	Jan. 31–Feb. 4	− 3·4	March 2–6 -	+ 7·6
„ 6–10 -	− 0·1	Feb. 5–9 -	+ 6·2	„ 7–11 -	+ 5·5
„ 11–15 -	− 0·7	„ 10–14 -	− 0·7	„ 12–16 -	− 0·3
„ 16–20 -	+ 0·2	„ 15–19 -	+ 8·0	„ 17–21 -	+ 2·9
„ 21–25 -	− 7·0	„ 20–24 -	+ 4·3	„ 22–26 -	+ 9·0
„ 26–30 -	−11·0	„ 25–March 1	+ 4·8	„ 27–31 -	− 0·9

From this it is evident that at Kew the excess of temperature noticed in February occurred chiefly in the latter half of the month, while that in March took place in two periods, one from the 2nd to the 11th, the other from the 17th to the 26th. The cold in January was most intense after the 25th.

RAIN.

The following table contains the chief details of the rainfall in each month of the quarter at the various observatories and other stations belonging to the Meteorological Committee, together with a few other stations from which returns are furnished privately.

RAINFALL, 1871.

Positions of Gauges.			January.							February.							March.							Remarks.
Names of Stations.	Height of Gauge.		No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Day.	No. of Falls exceeding 1 inch in 24 Hours.	Days.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Day.	No. of Falls exceeding 1 inch in 24 Hours.	Days.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Day.	No. of Falls exceeding 1 inch in 24 Hours.	Days.	
	Above Ground.	Above Mean Sea Level.																						
	ft. in.	ft.																						
Observatories.																								
Valencia	1 6	11	22	5·60	−1·45	1·27	1st	1	1st	25	4·67	+0·85	1·03	12th	1	12th	16	5·93	+1·03	1·00	1st	1	1st	
Armagh	1 5	204	23	3·43	+0·70	0·63	1st	0	—	20	2·73	+0·81	0·74	10th	0	—	18	0·96	−1·25	0·27	12th	0	—	
Glasgow	0 1	180	15	3·38	−1·69	0·76	2nd	0	—	21	4·86	+0·92	·57	11th	0	—	15	3·05	−0·32	0·57	10th	0	—	
Aberdeen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Records commenced in April.
Falmouth	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Stonyhurst	0 9	376	14	1·21	−2·78	0·23	8th & 10th.	0	—	25	4·54	+0·65	·84	6th	0	—	19	1·97	−0·95	0·52	16th	0	—	
Kew	1 1	19	15	1·76	−0·22	0·48	17th	0	—	13	0·99	−0·36	0·17	10th	0	—	13	0·98	−0·71	0·23	10th	0	—	
Telegraphic Reporting Stations.																								
Thurso	1 9	25	19	1·76	−0·61	0·25	5th	0	—	18	3·27	−0·21	0·92	5th	0	—	19	1·88	−0·45	0·52	14th	0	—	
Wick	1 9	100	12	1·68	+0·01	·41	1st	0	—	15	3·33	+1·17	·97	5th	0	—	14	1·04	−0·88	·26	14th	0	—	
Nairn	1 2	44	13	0·79	−0·97	·16	22nd	0	—	13	1·01	−0·98	·28	8th	0	—	14	1·16	−0·05	·45	12th	0	—	
Aberdeen	1 2	135	11	1·40	−1·98	·44	15th	0	—	15	3·70	+1·78	·72	7th	0	—	11	0·42	−1·37	·11	9th	0	—	
Leith	1 2	21	13	1·06	−1·04	·36	6th	0	—	14	2·68	+0·23	·37	7th	0	—	11	0·83	−0·17	·28	9th	0	—	
North Shields	10 0	107	11	0·76	−1·28	·28	22nd	0	—	15	1·88	+0·34	·38	4th	0	—	13	0·52	−1·32	·14	9th	0	—	
Scarborough	1 0	130	4	0·93	−1·41	·43	15th	0	—	12	1·44	+0·05	·24	3rd	0	—	8	0·69	−1·12	·17	9th	0	—	
Yarmouth	1 2	20	4	0·83	−2·51	·38	16th	0	—	6	2·12	−0·43	·64	10th	0	—	4	1·38	−0·86	·39	14th	0	—	
Ardrossan	1 2	13	18	3·04	−2·11	·61	6th	0	—	22	5·09	+1·69	·76	3rd	0	—	18	3·13	+1·11	·73	9th	0	—	
Greencastle	7 6	70	12	2·85	−1·11	·65	7th	0	—	15	2·38	−1·26	·55	11th	0	—	15	3·48	+0·89	·51	9th	0	—	
Holyhead	1 2	44	10	2·95	−1·19	·51	14th	0	—	12	2·38	−0·25	·48	27th	0	—	5	1·20	−0·98	·55	15th	0	—	
Liverpool (Bidston Observatory).	0 6	180	11	1·31	−0·62	·20	7th	0	—	15	1·57	0·00	·40	5th	0	—	12	0·82	−0·57	·24	15th	0	—	
Roche's Point	1 9	23	22	4·89	−2·25	·65	14th	0	—	19	4·64	+0·77	·72	9th	0	—	13	2·47	−1·84	·63	8th	0	—	*Valencia* is represented by the Observatory.
Pembroke	1 2	125	18	5·23	−0·68	·73	1st	0	—	20	2·37	−1·20	·46	6th	0	—	12	1·33	−2·34	·42	9th	0	—	
Scilly	1 9	100	20	4·80	—	·84	21st	0	—	14	1·51	—	·56	9th	0	—	10	0·91	—	·21	15th	0	—	
Plymouth	27 0	95	20	3·10	−2·22	·53	10th	0	—	19	3·15	−0·50	·70	9th & 28th.	0	—	10	1·31	−2·17	·40	9th	0	—	
Portsmouth	1 0	16	16	2·60	−1·01	·52	17th	0	—	15	1·28	−1·10	·21	20th	0	—	7	0·78	−1·05	·32	15th	0	—	
Dover	23 0	46	18	2·27	—	·42	20th	0	—	13	1·67	—	·62	7th	0	—	13	1·58	—	·45	9th	0	—	
London	1 3	—	19	2·01	−0·78	0·44	17th	0	—	15	1·16	−0·74	0·28	7th	0	—	13	1·00	−0·79	0·21	9th	0	—	
Extra Stations. (Information supplied by Societies, private individuals, and others.)																								
Barnstaple	0 8	31	16	3·26	−1·11	0·75	14th	0	—	22	2·75	−0·11	0·53	5th	0	—	12	1·66	−0·91	0·32	9th	0	—	
Dublin	3 0	57	20	2·62	−0·11	0·52	10th	0	—	16	1·65	−0·03	0·39	2nd	0	—	12	0·82	−0·98	0·25	1st	0	—	
Florence Court (co. Fermanagh).	11 4	300	20	4·49	−0·49	0·48	27th	0	—	21	4·75	+1·48	0·86	21st	0	—	19	3·94	+0·19	0·82	7th	0	—	
Galway	8 2	30	26	6·44	+0·11	0·87	14th	0	—	23	4·78	+0·27	0·47	28th	0	—	15	2·21	−1·33	0·36	15th	0	—	
Guernsey	12 0	204	23	5·91	+1·19	1·08	10th	1	10th	17	2·05	−0·55	0·47	12th	0	—	7	1·13	−2·56	0·42	15th	0	—	
Helston	5 0	115	22	4·95	+0·68	0·75	18t	0	—	14	1·67	−1·17	0·62	9th	0	—	9	1·14	−1·87	0·22	15th	0	—	
Jersey	36 11	39	25	4·83	+1·41	0·95	11th	0	—	22	2·71	+0·63	0·42	13th	0	—	10	1·29	−2·04	0·33	16th	0	—	
Rugby	3 0	383	—	—	—	—	—	—	—	—	—	—	—	—	0	—	—	—	—	—	—	—	—	Records commenced in April.
Sandwick, Orkney Islands	2 0	78	18	1·65	−2·36	0·22	9th & 10th.	0	—	24	4·40	+0·50	0·86	7th	0	—	21	2·30	−0·72	0·30	8th	0	—	

There is a singular absence of excessive falls during the whole quarter, but it is worth noting that at Valencia a fall of an inch or more in the 24 hours occurred in each month, whereas at Guernsey only was that amount reached even for once in the quarter.

PART 2.

April 1. Fig. 18 for 8 a.m. shows us the last trace of the disturbance alluded to on p. 22, which was now passing off, having drawn the winds over these islands into north or north-west, with snow in the north of Scotland and a fall of temperature, which was considerable everywhere but in Ireland and the south-west of England. The gale still held from N.W. at Skudesnaes, and from W. at Hamburg.

The Scotch and Irish barometer readings gave way very early on the 2nd, and though a recovery occurred next day, pressure gradually became more uniform, and winds remained moderate on our coasts for a short time. At 7 a.m. on the 4th, however, the wind at Sandwick rose to a strong breeze from the westward, and veered quickly to N.W., blowing freshly about noon. During the evening a depression appears to have moved in a southerly direction over Norway, and Fig. 19 shows us that its centre lay, at 8 a.m. on the 5th, not far from Skagen in Denmark, while a N.W. gale was reported in the Cattegat and on the north coast of Germany. This soon passed off, and by next morning (6th) an elongated anticyclone lay along the east coast of Great Britain, and the easterly winds on the south-west side of it attained the force of a strong breeze at the entrance of the Channel and at Valencia. It is worthy of notice how the daily range of the thermograms, which is very marked at most of the observatories on Plate XX., and the usual "fine-weather" increase of velocity in the wind about midday, are almost entirely obliterated at Valencia and Falmouth, owing to the efflux of easterly wind along our southern coasts, and, as far as the scanty information available shows us, over France likewise. As might naturally be expected, the sky at the southern stations was very cloudy, while elsewhere it was nearly clear.

April 9. In the evening of this day a very brilliant aurora was seen in many parts of the kingdom, and by 3 a.m. next morning the easterly wind at Falmouth had increased to a strong breeze, which reached the force of a gale during the forenoon, and was felt at Valencia also by 8 a.m., the barometer at the south-western stations at the same time giving way slightly. At 10 p.m. Capt. H. F. Watt, in the "Eliada," reports a short but stiff southerly gale in 51° 41′ N., 16° 19′ W., his barometer, an aneroid, having been at its lowest at 5 p.m. The depression gradually advanced over the south of Ireland, and at 8 a.m. 11th the conditions of pressure were those represented on Fig. 20, Plate XXI. An area of high readings prevailing over our east coast, the gradient from Scarborough to Valencia was as much as 8·5, and so we find

that the wind at the stations lying between these points increased materially, as is shown by the subjoined table :—

Observatories. April 10th-11th.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	8 a.m. (10th).	E.	—	—	—	—	Noon (11th)	S.	28	2 a.m. (11th).	E.S.E.	42	This velocity was only reached for one hour.
Armagh -	—	—	—	—	—	—	—	—	—	—	—	—	Wind freshened a little on the afternoon of the 11th, and reached 30 miles from S.E. at 5 p.m.
Falmouth -	3 a.m. (10th).	E. by S.	—	—	—	—	7 p.m. (11th)	S.S.W.	40	11 a.m. (10th).	E.	40	—
Holyhead -	Noon (11th).	S.E. by S.	7 p.m. (11th).	S.S.E.	41	2	11 p.m. (11th)	S. by W.	11	7 p.m. (11th).	S.S.E.	41	—
Yarmouth -	11 p.m. (11th).	S.S.E.	—	—	—	—	2 a.m. (12th)	S.S.E.	3	Midnight (11th).	S.S.E.	32	—

The path of the main depression apparently skirted the west coast of Ireland and then crossed Scotland, for while the indications of its passage at Falmouth are but slight, they are very decided at the Scotch stations, where the minimum was registered about 24 hours later than at Valencia. It is interesting, as a result of the use of self-recording rain gauges, to note how the rainfall, which was locally heavy, occurred everywhere except at Stonyhurst shortly before the passage of the minimum.

The great cold of the night of the 10th-11th, everywhere but at Valencia and Falmouth, is very striking.

April 12. We see from Plate XXI. that the barometer at Valencia was not very steady, and the wind, which had veered to South, increased considerably, and even to a slight gale for two hours. The fall of the barometer in Scotland had amounted to 0·4 in., so that the directions of the principal gradients had been entirely altered, and the polar current had been quite replaced by the equatorial, with warmer weather, the wind rising to a strong breeze on the west coast of England at noon.

The barometer at Valencia began to fall slowly and the wind backed to S.E. in the afternoon of the 13th. This disturbance affected the other stations in the course of the next two days, and on the morning of the 15th an extensive area of low readings is found over these islands, where, naturally, the winds were light, but they were much fresher in France, Holland, and in Norway, almost reaching the force of a gale at Skudesnaes. Rain was very general. In the evening a fresh decrease of pressure showed itself in the west, and caused the wind at Falmouth to rise to a slight gale, and at Kew to a strong breeze, owing to the temporary rise of the barometer at the English stations, which had increased the gradients for S.W. winds.

April 16. The barometer had begun to rise everywhere, except in the N.W. of England, by 8 a.m., and accordingly we see the last trace of the depression just alluded to in Fig. 21, Plate XXII., where the lowest reading was at Holyhead, but the only gales reported, which were insignificant, were on our south-east coast. A second depression is noticeable at the English observatories, especially those in the south, during the night of the 16th, subsequent to which a wave of higher readings passed over all the stations, the wind remaining persistently in the east at the northern observatories. A bright aurora was reported from Thurso and Sandwick on the evening of the 17th, and at the same time Captain Walker in the steam whaler "Erik" in 62° N., 3° W., not far from the Färoe Islands, reports "aurora very bright in W. and S."

April 18. We see by Plate XXII. that at midnight on the 17th the barometer had begun to fall gradually at Falmouth, and that Valencia soon followed suit, but there the change was more rapid and the minimum was reached at 6 p.m., while it does not appear in the other barograms until next day.

The gale was not serious, and was principally felt on the east coast of Scotland, where it lasted during the whole of the 19th at Aberdeen.

Observatories. April 18th-19th.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind,	Velocity.	
Valencia -	8 a.m. (18th).	E.	—	—	—	—	11 p.m. (18th)	S.W.	15	11 a.m. & 7 p.m. (18th).	E. by N. & S.	40	Veered gradually to S.W. during the afternoon and evening.
Armagh -	5 p.m. (18th).	E.	—	—	—	—	8 p.m. (18th)	E. by S.	3	7 p.m. (18th).	E. by S.	36	—
Glasgow -	1 p.m. (18th).	E. by N.	—	—	—	—	2 p.m. (19th)	N.E.	25	Midnight (18th).	E. by N.	40	—
Aberdeen -	11 p.m. (18th).	S.E.	2 a.m. (19th).	E. by S.	45	28	3 p.m. (20th)	N.E. by N.	40	7 & 8 a.m. (19th).	E.	51	—
Sandwick -	9 p.m. (18th).	E. by S.	5 a.m. (19th).	E. by S.	44	17	8 p.m. (20th)	E.N.E.	47	2 p.m. (19th).	E. by N.	49	—
Falmouth -	6 a.m. (18th).	E.S.E.	—	—	—	—	4 p.m. (18th)	S. by W.	10	2 p.m. (18th).	S. by W.	34	—
Holyhead -	11 a.m. (18th).	E.	2 p.m. (18th).	E. by N.	42	3	11 p.m. (18th)	S.S.E.	12	3 & 4 p.m. (18th).	E.	43	Wind veered gradually during the progress of the gale.
Alnwick Castle.	7 p.m. (18th).	S.E. by E.	—	—	—	—	4 a.m. (19th)	S.E. by E.	9	2 a.m. (19th).	S.E. by E.	34	—
Yarmouth -	5 p.m. (18th).	E. by S.	—	—	—	—	9 p.m. (18th)	S.E.	4	7 p.m. (18th).	E. by S.	40	—

At the same time that this gale was being felt on our shores, Captain E. J. Blake, of the "Gilbert Thompson," and Captain Tait of the "City of Foochow," report a strong N.W. gale in 47°–49° N. and 16° W., with brilliant red aurora, and Capt. Walker, who was now near the Shetlands, also reports aurora in the N.E.

Fig. 22 for 8 a.m. 19th shows an area of readings below 29 inches lying over the south-west of Ireland. Rain was reported from a great number of stations, more than an inch at Aberdeen, with some snow in the extreme north. In the course of the day the wind at Valencia increased again to a strong breeze from W.S.W. which lasted for 26 hours. At Falmouth and Holyhead also strong breezes were reported from West and South respectively in the afternoon. These died down at the observatories before 8 a.m. next morning, when, as we see from Fig. 23, the depression was shallower but much more extensive, and embraced the north-east of England and the greater part of the North Sea. The only gales reported were in the Channel, and were very slight. The amount of rain which fell during these days was very considerable.

For the next few days there was not much to remark, except that on the 22nd and 23rd a slight depression passed over the centre of England, producing stiff breezes from south, veering to west, at Valencia, Holyhead, and Falmouth, and from east at Aberdeen, where the rain was again very heavy. The chief point noticeable on the 25th is the sudden depression of temperature at Armagh and in Scotland in the early morning (Plate XXIII.); a slight aurora had been observed at Thurso on the previous evening. The barometer fell at the northern stations on the 26th, and Aberdeen reports again a rainfall of nearly 1·25 in., with an easterly wind, the heaviest portion of which was collected during an oscillation of temperature between 8 and 9 p.m.

No other change of consequence manifested itself until the 29th, when a depression appeared at the southern stations, Plate XXIV. It did not cause any serious increase of wind, but in Scotland the vane veered to north-west during the early hours of the day, and the temperature at Glasgow and Aberdeen fell nearly to 32°, while fog was very general. Northerly and north-westerly winds remained prevalent at all stations during the next two days with finer weather. Occasional hail-storms with thunder were, however, reported from the south-east of England at the end of the month.

May 2. The barometer at Valencia began to give way, Plate XXV., and the disturbance passed over all the stations, but was most serious in the north, where the fall by 8 a.m. on the 3rd (Fig. 24) had amounted to 0·4 in., and a moderate southerly gale was reported from Ardrossan and Nairn. At this time the area of depression lay off the north-west coast of Scotland, but by next morning it had advanced to the North Sea (Fig. 25), and had apparently assumed an oval shape, the gradient from Holyhead to Shields being as much as 10, so that the gale continued from N.W. on the west coast of Scotland. It is remarkable that this N.W. gale was not felt at any of the observatories; the wind was strongest at Sandwick, where the velocity of 50 miles an hour was felt at 10 a.m. on the 3rd, the force of a gale continuing till 2 p.m. At Glasgow, Holyhead, Stonyhurst, and Alnwick Castle strong S.W. breezes were reported. This disturbance was not accompanied by much rain, and the weather in the south of England was hardly affected by it.

From this day until the 15th there was but little calling for remark, the barometer was steady and temperature generally low, with considerable daily range, except at

Falmouth, and on the 9th at Aberdeen also. The wind was for the most part Northerly, with a clear sky and the weather dry.

On the 8th, however, a striking phenomenon is noticeable at Kew(Plate XXVI), a slight barometrical depression manifesting itself there, and being also traceable, but to a much less extent, at Stonyhurst. The wind, which had been very light from the eastward, backed to W. at 8 a.m., and freshened to a slight breeze up to 3.15 p.m., when a heavy squall of rain with thunder and lightning came on, the wind veered at once to N.E., and the thermometer fell 12° almost within five minutes. This change was quite local.

May 16. The barometer had fallen briskly in the south of Norway, and fresh northerly breezes were blowing over these islands generally, causing a rapid diminution of temperature at all our stations, especially those in the north, as will be seen from Plate XXVIII.

The wind at Sandwick blew strongly from N.W. for 25 hours, and even reached the force of a gale for five hours. At Holyhead also a strong breeze was felt. A careful examination of the thermograms will show that this disturbance of temperature propagated itself *from north-east to south-west*, and this statement is corroborated by a reference to the Norwegian weather reports, where we find that the minimum temperature was recorded at Christiansund at 2 p.m. 16th, at Aalesund 2-8 p.m. 16th, and at Skudesnaes, Mandal, and Sandösund at 8 a.m. 17th. The absence of continuous records precludes our tracing the actual march of the thermometric depression at the above-named stations, but our own records show that the lowest reading was registered at Aberdeen *before* its appearance at Glasgow, Stonyhurst, and Armagh, at all which latter stations the temperature fell to the freezing point, and even 3° below it at Glasgow.

This propagation of cold in a westerly direction has been noticed by Dove and several other meteorologists.

The fall of the thermometer was accompanied by a rise of the barometer, which produced the state of things represented on Fig. 26, where the curve of 30 ins. embraces England and Ireland, and the only strong winds reported are from Oxö and the Helder. A change, however, set in speedily, and a barometrical depression advanced from the northward over Scotland and extended to the north of England and Ireland, Plate XXVIII. At 2 p.m. the wind at Thurso was E.N.E., with snow showers, while at Greencastle and Ardrossan it was W.S.W. Fig. 27 shows the conditions of pressure at 6 p.m., when a slight W.N.W. gale was reported from Alnwick Castle and North Shields. By 8 a.m. next morning the disturbance in question had advanced to the southern part of the North Sea, the greatest fall being reported from the Helder, although the lowest readings are found in Norway, the wind having veered to the northward at all our northern and eastern stations, while a squally West gale with rain and snow showers had been prevalent at Hamburg during the night.

Pressure continued to increase in the north, until on the 21st an easterly wind became established over France, and by next morning the barometer had fallen more

than 0·2 in. at all the south-western stations, and the easterly current gained in force and increased to a strong breeze at Falmouth for 10 hours from 10 a.m. It is remarkable that although at 8 a.m. "blue sky" was reported from every British and French station reporting at that time to the office, except Thurso, Wick, and Biarritz, yet the daily range at Falmouth was scarcely perceptible. The great dryness of this east wind is most striking as shown by the curve of vapour tension at Valencia (Plate XXIX.). This depression of the wet bulb thermometer was, however, produced when the direction of the wind was north-easterly.

The barometer continued to fall, but now more rapidly in the west, and the wind gradually veered to S.E. and S. along our western and northern coasts, blowing as a strong S.S.E. breeze at Sandwick for 16 hours from noon on the 23rd, and attaining considerable force at Valencia during the morning of the 24th, with a good deal of rain. On this day the maximum temperature for the month was registered at Kew and Stonyhurst.

No important change of weather occurred up to the end of the month, except that on the night of the 27th a depression passed over France, drawing the wind at our southern stations into north-east (where it remained till the close of the month), and causing thunderstorms with hail in the Channel and in London.

On the 30th and 31st slight N.W. gales were reported from the south of Norway and from Hamburg.

Plate XXXI. affords a very good instance of what has already been alluded to as the "fine-weather" increase of velocity in the anemograms at midday. During the whole of the five days an area of high pressure lay off the north-west coast of Ireland, and the winds were consequently anticyclonic.

June 6. A reduction of pressure over the south of Norway caused the northerly winds to freshen over these islands, especially at Falmouth and Holyhead, and by the 7th, when the centre of depression had advanced to the coast of Germany, a stiff northerly gale had blown along our north-east coast, with more than an inch of rain at Yarmouth. This disturbance died down by the 9th, when winds were again light, and continued so for some days, with fine weather and rather low temperature.

June 12. The barometer fell in the west, and the wind at Valencia veered to south-east and blew freshly from E.S.E. veering to S. for more than 24 hours, with occasional lulls. This change brought on heavy rain with local thunderstorms on the 15th and 16th, when an inch of rain was collected both at Dover and Shields, and one of Mr. Symons' observers, Mr. Little, of Thorpelands, Northampton, records 1·25 in. in an hour. A very heavy shower fell at Valencia simultaneously with a temporary "back" of the wind to S.S.E. It is noticeable that this shower was *not* accompanied by a sudden depression of the thermometer.

The weather for the next ten days was cold for the season and wet except in Scotland. Thunderstorms were also very prevalent. The wind was at first north-westerly at all our stations, and from the 24th to the 26th was generally north-easterly, freshening

occasionally at some of the stations, but not attaining any serious force. On the latter day the barometer began falling generally, and on the 27th at 8 a.m. a slight meniscus-shaped depression lay over Ireland, its convex side lying to the westward and its points being at Scilly and Greencastle respectively. Pressure continued to give way briskly, and between noon on the 27th and the same hour on the 28th a well-marked hollow was recorded on all the barograms, advancing steadily to the north-eastward. It caused strong southerly winds at Valencia, Holyhead, and Sandwick, and even a slight gale at 6 p.m. at the first-named observatory. At Falmouth a stiff westerly breeze blew during the midday hours on the 28th. Another depression was registered at the Irish observatories on the 29th; but though the barometer fell lower at Valencia than it had done on the previous day the effect on the wind was not so serious, and the only stations which recorded velocities above 30 miles were Sandwick and Holyhead.

Remarks.

Wind.—The total number of hours during which the wind blew with a velocity above 30 miles an hour at each observatory, in each month and in the entire quarter, is shown in the following table.

Observatory.	April.	May.	June.	Total.	Observatory.	April.	May.	June.	Total.
Valencia - -	133	15	52	200	Holyhead -	59	49	109	217
Armagh - -	4	0	4	8	Stonyhurst -	0	7	1	8
Glasgow - -	24	17	0	41	Alnwick Castle -	11	17	0	28
Aberdeen - -	59	4	1	64	Kew - - -	5	0	0	5
Sandwick - -	117	77	38	232	Yarmouth - -	18	3	23	44
Falmouth - -	147	14	53	214					

These figures exhibit a strong contrast to those for the preceding quarter, p. 23. The only point specially remarkable about them is, that for the first time since the erection of the anemometer at Holyhead, that station does not head the list, but is surpassed by Sandwick and all but equalled by Falmouth. The high figure for the last-named station is due to the constant prevalence of strong easterly winds in the Channel.

Pressure.— April.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·733	−0·189	30·210	4th, noon.	28·917	18th, 6 p.m.	1·293
Armagh - -	29·761	−0·143	30·182	7th, 9 a.m.	28·983	19th, 7 a.m. and 2 p.m.	1·199
Glasgow - -	29·765	−0·128	30·218	7th, 8 a.m.	29·064	19th, 7 p.m.	1·154
Aberdeen - -	29·797	−0·119	30·233	6th, 11 a.m.	29·134	15th, 11 p.m.	1·099
Falmouth - -	29·847	−0·156	30·240	4th, 9 p.m.	29·142	19th, 7 a.m.	1·098
Stonyhurst	29·777	−0·115	30·246	7th, 8 a.m.	29·005	19th, 3 p.m.	1·241
Kew - -	29·833	−0·135	30·242	6th, 11 p.m.	29·179	19th, 1 p.m.	1·063

The barometer was everywhere between 0·1 in. and 0·2 in. below the average, but the defect was greater in the west and south than in Scotland and at Stonyhurst. The range was also very uniform, and less in amount than in the corresponding month in the two previous years.

May.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	30·109	+0·248	30·415	20th, noon	29·619	24th, 8 a.m.	0·796
Armagh - -	30·118	+0·196	30·410	28th, 10 p.m.	29·694	3rd, 6 a.m.	0·716
Glasgow - -	30·065	+0·156	30·395	7th, 8 a.m.	29·420	3rd, midngt.	0·975
Aberdeen -	30·067	+0·115	30·419	28th, 9 p.m.	29·378	4th, 1 a.m.	1·041
Falmouth -	30·106	+0·101	30·392	20th, noon	29·786	25th, 4 a.m.	0·606
Stonyhurst -	30·088	+0·180	30·397	7th, 8 a.m.	29·719	4th, 3 a.m.	0·678
Kew - -	30·092	+0·126	30·393	7th, 10 a.m.	29·800	25th, 1 p.m.	0·593

The mean pressure was about as much in excess in May as it had been in defect in April. As regards the range, the same remark as has already been used with respect to April holds true with even more force for May, for the extreme range at Aberdeen was hardly above an inch, and the lowest reading was 29·378.

June.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·954	−0·051	30·430	25th, 3 p.m.	29·361	29th, noon	1·069
Armagh - -	29·962	+0·045	30·417	2nd, 11 p.m.	29·407	29th, 9 p.m.	1·010
Glasgow - -	29·950	+0·061	30·358	3rd, 1 a.m.	29·420	18th, 4 a.m.	0·938
Aberdeen - -	29·985	+0·064	30·332	26th, 4 a.m.	29·377	18th, 2 a.m.	0·955
Falmouth - -	29·970	−0·077	30·359	25th, 11 p.m.	29·543	18th, 4 p.m.	0·816
Stonyhurst - -	29·947	+0·027	30·321	26th, 10 a.m.	29·467	18th, 3 a.m.	0·854
Kew - - -	29·946	−0·034	30·291	26th, 11 a.m.	29·512	17th, 7 p.m.	0·779

In this month the mean readings almost exactly coincided with the average values. The range was on the average nearly an inch; it was greatest at Valencia and least at Kew.

Temperature.— April.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	50·7	+1·5	58·7	9th, 3 p.m.	40·0	4th, 4 a.m.	18·7
Armagh - -	46·9	−0·4	59·7	13th, 1 p.m.	30·1	9th, 5 a.m.	29·6
Glasgow - -	43·1	−1·8	58·1	13th, 2 p.m.	31·3	8th, 5 a.m.	26·8
Aberdeen - -	41·0	−2·1	59·3	12th, 3 p.m.	27·3	6th, 5 a.m.	32·0
Falmouth - -	49·7	?	59·0	29th, 11 a.m.	39·7	5th, 5 a.m.	19·3
Stonyhurst - -	45·6	+1·1	59·6	29th, 3 p.m.	29·8	8th, 5 a.m.	29·8
Kew - - -	48·6	+2·4	62·6	12th, 2 p.m.	30·4	11th, 4 a.m.	32·2

The temperature was nearly at its average value, but the month was generally colder than in 1869 and 1870. The range was least at Valencia and greatest at Kew, and was very slight compared with the previous years at the same period. At Kew it was as much as 17°·4 less than in 1870.

May.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	55·1	+2·2	72·9	29th, 2 p.m.	42·3	10th, 5 a.m.	30·6
Armagh - -	52·2	0·0	69·3	7th, 5 p.m.	32·0	17th, 4 a.m.	37·3
Glasgow - -	51·9	+1·5	74·4	29th, 4 p.m.	29·0	17th, 4 a.m.	45·4
Aberdeen - -	48·2	0·0	66·4	22nd, 2 p.m.	32·6	17th, 2 a.m.	33·8
Falmouth - -	53·0	?	68·5	29th, 5 p.m.	41·6	12th, 2 a.m.	26·9
Stonyhurst - -	51·3	+1·4	74·1	24th, 3 p.m.	31·6	17th, 4 a.m.	42·5
Kew - - -	52·1	−0·9	*77·7	24th, 4 p.m.	34·0	12th, 6 a.m.	43·7

* The corrected reading of Phillips' maximum thermometer, the curve being too faint to measure.

The mean readings were again very nearly at their normal values, but the range was considerable; it was least at Falmouth, as might have been expected from the occasional remarks in the text. The highest value for it is at Glasgow, owing to the severe frost on the night of the 16-17th, to which allusion has already been made (p. 33).

June.

Observatory.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	57·5	+0·8	69·4	1st, 3 p.m.	46·3	24th, 4 a.m.	23·1
Armagh - -	55·5	−2·6	71·0	15th, 2 p.m.	40·7	10th, 5 a.m.	30·3
Glasgow - -	54·7	−1·1	68·9	14th, 4 p.m.	40·9	3rd, 4 a.m.	28·0
Aberdeen - -	50·6	−4·4	66·0	17th, 1 p.m.	39·3	25th, 3 a.m.	26·7
Falmouth - -	56·5	?	68·7	1st, 1 p.m.	43·4	5th, 4 a.m.	25·3
Stonyhurst - -	54·2	−0·5	67·6 {	12th, 4 p.m. / 14th, 3 p.m.	} 37·9	5th, 4 a.m.	29·7
Kew - - -	55·2	−3·9	73·1	16th, 2 p.m.	39·2	4th, 2 a.m.	33·9

June was a very cold and ungenial month, especially on the east coast of these islands, as the figures for Aberdeen and Kew show. The range was remarkably uniform, and was small for the season. It was greatest at Kew and least at Valencia. The highest temperature reached at Kew during the month was 8°·9 less than in 1869, and 13°·2 less than in 1870.

The following is the usual comparison of the five-day means for Kew with those for 43 years for Greenwich.

Date.	Variation.	Date.	Variation.	Date.	Variation.
	°		°		°
April 1–5 -	+ 0·7	May 1–5 -	− 1·8	May 31–June 4	− 7·2
„ 6–10 -	− 3·7	„ 6–10 -	− 1·9	June 5–9 -	− 5·9
„ 11–15 -	+ 6·8	„ 11–15 -	− 4·9	„ 10–14 -	− 1·4
„ 16–20 -	+ 4·9	„ 16–20 -	− 1·6	„ 15–19 -	+ 2·1
„ 21–25 -	+ 3·0	„ 21–25 -	+ 4·6	„ 20–24 -	− 5·0
„ 26–30 -	+ 3·0	„ 26–30 -	+ 0·4	„ 25–29 -	− 5·2

Hence we see that the five-day means were above the average in April, except from the 6th to the 10th, the middle of the month showing rather a high temperature.

For the remainder of the quarter the temperature was almost constantly in defect, especially at the beginning and end of June.

RAIN.

The next table (p. 40) is drawn up in a manner and from materials precisely similar to those employed for the table in Part I., with the exception that the values for the observatories are recorded by the self-registering gauges supplied to them.

April was a very wet month almost everywhere, especially in the west. At Aberdeen there were two falls of more than an inch in the 24 hours. May was dry; while in June the rainfall was above the average in most places, but below it in a few instances. Valencia, North Shields, and Rugby all had more than an inch of rain on the 15th.

RAINFALL, 1871.

Positions of Gauges.			April.							May.							June.							Remarks.
Names of Stations.	Height of Gauge. Above Ground.	Height of Gauge. Above Mean Sea Level.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Day.	No. of Falls exceeding 1 inch in 24 Hours.	Day.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Day.	No. of Falls exceeding 1 inch in 24 Hours.	Day.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Day.	No. of Falls exceeding 1 inch in 24 Hours.	Day.	
Observatories.																								
Valencia	ft. in. 2 0	ft. 11	22	in. 5·06	in. +1·61	in. 1·36	13th	2	10th & 13th.	7	in. 1·72	in. −1·28	in. 0·78	23rd	0	—	14	in. 5·00	in. +2·16	in. 1·12	15th	1	15th	Self-registering gauges.
Armagh	2 2	204	17	2·52	+0·43	0·52	17th	0	—	5	0·25	−1·99	0·13	23rd	0	—	10	1·68	−0·45	0·61	30th	0	—	
Glasgow	1 10	180	17	4·51	+2·05	1·00	26th	1	26th	11	1·11	−1·38	0·25	3rd & 5th.	0	—	14	2·77	+0·04	0·66	20th	0	—	
Aberdeen	2 0	48	19	4·34	+2·27	1·02	26th	1	26th	12	0·65	−1·17	0·13	19th	0	—	13	1·03	−0·43	0·62	14th	0	—	
Falmouth	1 10	167	18	5·66	+3·23	0·75	20th	0	—	3	0·79	−1·78	0·44	22nd	0	—	14	1·53	−1·02	0·26	26th	0	—	
Stonyhurst	1 9	377	21	3·01	+0·56	0·64	11th	0	—	14	1·24	−1·16	0·33	3rd	0	—	19	1·75	−1·95	0·46	27th	0	—	
Kew	1 10	20	16	2·69	+1·27	0·62	18th	0	—	7	0·79	−1·04	0·26	27th	0	—	17	2·99	+0·60	0·97	14th	0	—	
Telegraphic Reporting Stations.																								
Thurso	1 9	25	19	2·16	+0·39	0·46	14th	0	—	14	1·27	+0·09	0·64	17th	0	—	12	0·38	−1·12	0·07	3rd & 16th.	0	—	
Wick	1 9	100	17	2·36	+1·02	0·32	26th	0	—	8	1·01	−0·30	0·50	17th	0	—	10	0·72	−0·53	0·20	15th	0	—	
Nairn	1 2	44	18	1·67	−0·01	0·62	19th	0	—	7	0·52	−1·07	0·15	3rd	0	—	14	1·55	+0·36	0·27	18th & 24th.	0	—	
Leith	1 2	21	18	4·25	+2·77	0·73	19th	0	—	8	0·56	−1·27	0·21	4th	0	—	14	2·15	+0·75	0·55	15th	0	—	
North Shields	10 0	107	16	3·21	+1·39	0·68	18th	0	—	9	1·44	−0·69	0·55	25th	0	—	13	2·92	+0·94	1·01	15th	1	15th	
Scarborough	1 0	130	15	2·80	+1·00	0·92	18th	0	—	8	1·43	−0·40	0·67	25th	0	—	13	2·38	+0·77	0·53	14th	0	—	
Yarmouth	1 2	20	14	3·92	+2·37	0·71	28th	0	—	7	0·90	−1·00	0·30	3rd	0	—	13	3·57	+1·77	1·12	7th	0	7th	
Ardrossan	1 2	13	15	4·50	+1·92	0·81	14th	0	—	10	0·93	−1·45	0·28	3rd	0	—	13	2·50	+0·69	0·59	15th	0	—	
Greencastle	7 6	70	19	4·57	+2·19	0·90	19th	0	—	9	1·24	−0·70	0·47	3rd	0	—	11	1·69	−0·38	0·51	15th	0	—	
Holyhead	1 2	44	11	3·60	+1·92	0·86	14th	0	—	5	0·86	−1·12	0·36	24th	0	—	9	1·56	+0·41	0·66	22nd	0	—	
Liverpool (Bidston Observatory).	0 6	180	14	1·68	+0·03	0·32	15th	0	—	5	0·86	−1·34	0·50	24th	0	—	10	1·83	+0·58	0·50	22nd	0	—	
Roche's Point	1 9	23	18	3·89	+1·27	0·63	18th	0	—	6	1·34	−3·74	0·42	24th	0	—	16	3·47	+2·38	0·38	12th & 21st.	0	—	
Pembroke	1 2	125	14	2·78	−0·07	0·62	18th	0	—	3	0·34	−2·60	0·25	24th	0	—	16	1·42	−0·67	0·27	22nd	0	—	
Scilly	1 9	100	20	3·23	—	0·45	14th	0	—	3	0·29	—	0·15	26th	0	—	18	2·14	—	0·51	26th	0	—	
Plymouth	27 0	95	18	5·31	+3·14	0·88	18th	0	—	2	0·11	−3·04	0·07	24th	0	—	13	2·09	+1·32	0·40	13th	0	—	
Portsmouth	1 0	16	16	3·26	+1·87	0·65	18th	0	—	4	0·22	−1·68	0·08	19th	0	—	14	2·98	+1·65	0·70	14th	0	—	
Dover	23 0	46	19	3·97	—	0·90	16th	0	—	6	0·95	—	0·50	27th	0	—	17	2·89	—	0·60	22nd	0	—	
London	1 3	—	18	2·86	+1·42	0·57	18th	0	—	9	1·01	−0·87	0·37	8th	0	—	17	3·40	+1·95	0·65	22nd	0	—	
Extra Stations. (Information supplied by Societies, private individuals, and others.)																								
Barnstaple	0 8	31	18	3·83	+1·59	0·54	28th	0	—	5	0·96	−1·33	0·75	24th	0	—	14	2·43	+0·12	0·50	19th	0	—	
Dublin	3 0	57	20	3·16	+0·61	0·58	18th	0	—	9	0·38	−1·74	0·06	4th & 19th	0	—	16	2·27	−0·33	0·53	20th	0	—	
Florence Court (co. Fermanagh).	11 4	300	20	4·55	+1·90	0·58	13th & 18th.	0	—	12	1·17	−1·04	0·33	2nd	0	—	14	1·91	−0·49	0·29	30th	0	—	
Galway	8 2	30	20	3·44	+0·43	0·37	16th & 18th.	0	—	12	1·23	−2·42	0·47	24th	0	—	19	3·50	+0·61	0·40	13th & 30th.	0	—	
Guernsey	12 0	204	17	3·45	+1·61	0·54	18th	0	—	4	0·73	−1·84	0·39	24th	0	—	15	2·51	+1·04	0·40	22nd	0	—	
Helston	5 0	115	19	4·87	+2·53	0·65	16th	0	—	4	0·90	−1·44	0·55	22nd	0	—	14	1·25	−0·90	0·21	27th	0	—	
Jersey	36 11	39	16	3·31	+1·42	0·70	15th	0	—	5	1·45	−0·52	0·58	25th	0	—	16	3·27	+1·84	0·50	18th	0	—	
Rugby	3 0	383	14	2·62	+1·16	0·46	16th	0	—	8	1·50	−0·09	1·00	24th	1	24th	18	3·16	+0·50	1·55	15th	1	15th	
Sandwick, Orkney Islands	2 0	78	16	1·74	−0·84	0·73	14th	0	—	13	1·12	−0·76	0.29	16th	0	—	7	0·33	−1·57	0·12	3rd	0	—	

PART 3.

July 1. The quarter opened with moderate southerly winds, which freshened to a strong breeze at most of the western observatories, and were accompanied by rain in several places. Temperature was remarkably uniform and the sky rather cloudy. There was nothing of much consequence to report up to the 5th, except that on the 2nd, and again on the 4th, slight depressions passed to the eastward along the south coast of England. The latter day was generally wet, and in some places heavy rain fell with thunder; at Scarborough the amount of 1·24 in. is reported.

At midnight on the 5th the barometer began to fall at Valencia, the wind having backed slowly from West to South. The velocity rapidly increased to a moderate gale both at that station and at Holyhead, but only for a few hours. This disturbance passed on to the northward, and by 8 a.m. on the 8th its centre lay off the N.W. coast of Scotland, while the wind had again freshened on the 7th to a velocity of over 40 miles an hour at the two stations first named. These winds were experienced by the S.S. "Cuba" and "Idaho" off the west coast of Ireland, but they never exceeded force 8.

July 8. A most remarkable thunderstorm was reported at Stonyhurst at about 2 p.m.; the rainfall between 1.30 and 2.30 p.m. exceeding an inch (Plate XXXVIII.) An examination of the actual record, in which the time scale is less contracted than in the plate, shows that the heavy fall began about 2.10 and lasted until 2.30.

July 10. A slight fall of the barometer appeared at Falmouth and became much more marked as the depression advanced over Kew, until at 8 a.m. on the 11th the conditions of pressure were those represented on Fig. 28 (Plate XXXIX.), the area of lowest readings lying over the north of Holland, while slight gales from W. and N.W. were reported in the south of the Bay of Biscay. In these islands the wind drew from N.E. on our east coast to N.W. at the south-western stations.

This disturbance soon passed off, causing a S.W. gale at Hamburg on the 12th, on which day the barometer fell again in Ireland and equatorial winds once more became the rule, with rain generally and much mist and fog at the entrance of the Channel.

July 15. A slight decrease of pressure showed itself in Ireland, and the oscillation passed rapidly over Scotland, where it is more decided, especially at Aberdeen. It caused a slight southerly gale at Valencia and on the west coast of England, and then passed on to Norway, while the barometer rose quickly in its rear. A fresh depression speedily followed it, but the track on this occasion was nearly from west to east, and the disturbance, which was hardly perceptible in any of the barograms excepting those from Scotland, had assumed by the morning of the 18th the position over the south of

Norway shown on Fig. 29, Plate XL., where the region of highest pressure appears over our south-western station, and a moderate westerly gale is blowing at the Naze and in the Cattegat.

During these days fog was very prevalent on our south-west coasts, while at Kew the temperature at midday ranged about 80°. On the 19th an extensive depression passed over all our stations, which was succeeded by general northerly winds next morning, when the temperature became more uniform.

From this to the 26th barometrical readings continued very low at the northern stations, the winds being fresh from S.W. and W., with cloudy and showery weather and occasional thunderstorms. However, on the 22nd, Capt. M'Kechnie, in the barque "Cottica," off the north-west coast of Ireland, reports a strong N.W. gale for a few hours in the afternoon.

July 27. A steady general rise of pressure ensued which was less noticeable at Valencia than elsewhere; this change was, however, only temporary, as the level of the mercury remained very unsteady, and by the 30th we find a large area of depression lying over the north of England, Fig. 30, Plate XLIII., with strong S.W. winds at the south-eastern stations, almost reaching the force of a gale at Kew and Yarmouth.

The thermograms for Falmouth show a very sudden fall of temperature in the afternoon of the 30th, causing the minimum of the month to be registered at the very unusual hour of 7 p.m. on that day.

This depression had apparently disappeared by the morning of the 31st, by being filled up *in loco*, for the rise of the barometer, over the area enclosed by the curve of 29·6 on Fig. 30, had exceeded 0·3 in., while in the extreme north and west, as well as in France, it was generally below 0·2 in. In Norway, however, a considerable depression is shown at Christiansund with a strong S.W. breeze.

This change ushered in a period of fine and dry weather, which lasted, almost without intermission, until the 16th of August, the only serious interruption to it taking place between the 3rd and 5th, when an area of depression traversed the Highlands of Scotland, bringing fresh S.W. breezes with it, which drew into N.W. as it passed away. This change was only temporary, and for several days after it the winds were extremely light.

Temperature throughout this period was higher than it had been. The maximum temperature for the year was recorded everywhere but at Valencia; but daily range was not great, except at Stonyhurst and Kew. Thunderstorms were not unfrequent in the south of England (the extraordinary fall of 4.24 inches of rain being reported at Melbury, near Dorchester, on the 14th), and aurora was observed at some stations on the 12th and 13th. On the latter day Capt. Leportier, in the SS. "Diana," off the coast of Norway, experienced a strong gale from W.N.W. for a short time, which was also felt at Christiansund and the stations lying to the north of that point.

Aug. 16. The barometer at Valencia fell gradually all day long, the decrease at midnight becoming more rapid, so that at 8 a.m. on the 17th, the fall in the south of

Ireland amounted to 0·3 in., while the wind had drawn into south-east and freshened; and at all the British stations the wind, though very light, was from the same quarter, indicating the existence of areas of barometrical depression not far from our coasts. It was not, however, at Valencia that the storm which succeeded was principally felt, but at the entrance of the Channel, where it is curious to notice that the barogram for Falmouth for the 17th, Plate XLVI., corresponded very closely with that from Valencia, and that the afternoon telegraphic report from Scilly gave no indication of the approach of the storm which came on during the night. It evidently advanced on us from the south-west, for at 4 p.m. on the 17th, three ships, which were all on about the parallel of 46°, reported stiff westerly gales.

The fall of the barometer during the 18th at Falmouth was quite exceptional, not appearing at any other station. Fig. 31 shows the position of the disturbance at 8 a.m. on the 18th, when a westerly gale was blowing at Scilly and the French stations. At Falmouth the velocity hardly exceeded that of a strong breeze, and at Holyhead a similar force was felt from W.N.W. in the afternoon of the 18th.

This depression disappeared nearly as suddenly as it had arrived at our coasts, and it was apparently filled up on the spot, for by means of the barograms from the northern stations we can trace the steady progress of the area of low pressure which passed over Valencia, and which is found over western Norway on the 19th.

Aug. 20. We find a fresh decrease of pressure at Valencia, with a southerly gale of short duration which passed very rapidly north-eastwards; the minimum reading being registered at Aberdeen 12 hours after its first appearance in the south-west of Ireland. It was only at Valencia and Holyhead that a gale was felt; at the former station the velocity averaged 43 miles an hour between 8 a.m. and 4 p.m., and at the latter it attained the mean velocity of 47 miles from noon to 8 p.m., and even that of 53 miles at 1 p.m. The disturbance is hardly traceable in the English Channel.

At 8 a.m. on the 21st the centre of depression lay between Scotland and Norway, and a stiff southerly gale blew on the west coasts of the latter country.

The weather continued fine for two days, but on the eve of the 23rd aurora was reported in the north of Scotland, and next morning a rapid fall of the barometer, with a strong southerly gale, set in at Valencia. Fig. 32, Plate XLVIII., shows the course of the isobars at 8 a.m., where the sudden bend to the southward in the line for 29·5 over Ireland shows the proximity of the centre of depression to Valencia.

The path of this cyclonic system corresponded to that of its predecessor, for the barometrical oscillation is hardly traceable at the observatories in the south of England. Fig. 33 shows us that at 6 p.m. on the 24th the centre was over Caithness, and by 8 a.m. next morning (Fig. 34) it lay near Skudesnaes. The oscillation seems to have continued its northward course, as the minimum was registered at Christiansund, Dovre, and Bodö at 2 p.m., while at Alten in Finmark and Vardö it did not occur until next day.

The following table shows that the gale was not very severe on our coasts, and was worst at Alnwick :—

Observatories. August 24-25.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	5 a.m. (24th).	S.E.	8 a.m. (24th).	S.	52	6	3 p.m. (24th)	W.	10	9 a.m. (24th).	S. by W.	59	—
Glasgow -	2 p.m. (24th).	S.S.E.	6 p.m. (24th).	S.W.byW.	49	1	9 p.m. (24th)	W. by S.	7	6 p.m. (24th).	S.W.byW.	49	—
Sandwick -	1 a.m. (24th).	W.N.W.	5 a.m. (24th).	W. by N.	46	6	4 p.m. (24th)	W.	15	6 a.m. (24th).	W. by N.	50	—
Falmouth -	8 a.m. (24th).	S.S.W.	11 a.m. (24th).	S.S.W.	43	6	6 p.m. (24th)	W.S.W.	10	1 p.m. (24th).	S.S.W.	45	—
Holyhead -	8 a.m. (24th).	S	10 a.m. (24th).	S.S.E.	47	8	10 p.m.(24th)	W. by S.	14	4 p.m. (24th).	S.S.W.	51	—
Alnwick Castle	3 p.m. (24th).	S. by E.	6 p.m. (24th).	S.W.	54	10	7 a.m. (25th)	W. by S.	16	1 a.m. (25th).	W.S.W.	63	—
Kew - -	2 p.m. (24th).	S.W. by S.	—	—	—	—	7 p.m. (24th)	S.W.by S.	5	3 p.m. (24th).	S.S.E.	37	—

The above figures give a very faint idea of the violence of the wind over the North Sea and on the south coast of Norway, where the force of 10 from S.W. and W. was registered nearly all day long on the 25th, and the casualties to shipping were most serious. Hamburg was almost outside the limits of the influence of the storm.

A period of very fine weather succeeded to the above disturbance and lasted for nearly a fortnight, when on the 6th rain set in generally, which exceeded an inch at Dover, Brest, and Biarritz, and even amounted to 2·03 in. at Scarborough. A reference to Symons' British Rainfall for 1871* will show that the rainfall of this day was the heaviest for the year over a considerable district in England.

On the 7th and 8th the barometer was unsteady generally but without much wind except at Valencia, where a strong breeze from south was felt on the former of these days. A number of local oscillations of pressure are noticeable on the 9th and 10th, on which latter day the barogram at Falmouth exhibits changes of pressure which are scarcely traceable elsewhere (Plate LI.), unless the course of the curve at Valencia be taken to indicate the same phenomenon. The irregularities at Falmouth are related to an area of depression which appeared at the mouth of the Channel and caused slight south-east gales at Pembroke and Falmouth, accompanied by heavy rain exceeding an inch at Falmouth, Penzance, and at Dublin. Fig. 35 shows the distribution of pressure at 8 a.m. on the 10th, the line of 29·6 taking a very serpentinous course across the mouth of the English and St. George's Channels. This change was the precursor

* "Although falls of 2 in. and upwards are confined to parts of East Yorkshire, those of from 1 in. to 2 in. extend S.S.W. in a narrow track, crossing the counties of York, Nottingham, Stafford, Worcester, Hereford, Gloucester, Somerset, and just reaching into Devon. The breadth of the track was pretty constant, varying from 40 to 50 miles, while its length, reckoning from the coast line at Whitby, was about 300. On either side, and beyond the S.S.W. end of the area indicated, the fall rapidly diminished, being seldom more than 0·1 or 0·2, except in the area above defined," p. 127.

of a period of steady easterly winds, which lasted with little modifications until the 20th, on which day the barometer began to fall generally, mostly in Scotland, and during the 21st the depression extended over the North Sea, while pressure began to recover at the south-western stations, so that by the morning of the 22nd the area of lowest readings lay off Peterhead, and the winds had drawn into north-west and west except in the extreme north of Scotland, where slight north-west gales were reported from the Orkneys and Shetlands as well as from Aberdeen.

Sept. 24. Another slight depression passed eastwards along the Channel, Plate LIV. causing strong westerly winds along the north coasts of France and Germany, and bringing with it much precipitation, the shower of hail at 11·30 at Stonyhurst being remarkably severe. This disturbance was speedily followed by another on the 25th, of which the track lay more to the southward, and which caused a hard east gale at Scilly, Falmouth, and Yarmouth for some hours. At Falmouth the gale lasted from 11 a.m. till 8 p.m., and the velocity from 4 to 6 p.m. was 50 miles per hour. At Yarmouth the duration of the gale was from 7 p.m. 25th, till 10 a.m. 26th, and the mean velocity 49 miles at midnight. Captain Capper, in the "Palm Tree," reported the same gale in the entrance of the Channel. These were, however, only preliminary to more serious disturbances, which lasted until the end of the month.

Sept. 26. At noon the barometer at Valencia began to fall briskly, and the change propagated itself to the English stations, the irregularity of the curve being especially noticeable at Falmouth and Kew. At 8 a.m. on the 27th the conditions of pressure were those represented on Fig. 36 (Plate LIV.), where the area of lowest readings lies off the south coast of Ireland, and a strong gale, drawing from S.W. in France round to N.E. at Valencia, is reported, while more than an inch of rain fell at Roche's Point. It will be seen from the subjoined table that the actual storm was felt only at Holyhead.

Observatories. September 27&28.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia -	2 a.m. (27th).	N.E.	—	—	—	—	6 p.m. (27th)	N.N.E.	16	9 a.m. (27th).	N.N.E.	38	—
Falmouth -	10 p.m. (26th).	E.S.E.	—	—	—	—	2 p.m. (27th)	S. by E.	16	11 p.m. (26th).	S.E. by E.	40	—
Holyhead -	Midngt. (26th).	E. by N.	4 a.m. (27th).	E. by N.	48	29	4 p.m. (28th)	N.	40	7 a.m. (27th).	E. by N.	60	—
Aluwick Castle	6 p.m. (27th).	E.N.E.	—	—	—	—	1 a.m. (28th)	N.E. by N.	7	7 p.m. (27th).	E.N.E.	34	—
Yarmouth -	2 a.m. (27th).	E. by S.	9 a.m. (27th).	E.S.E.	44	4	3 p.m. (27th)	S. by E.	13	9 & 10 a.m. (27th).	E.S.E.	45	—

By next morning, the 28th, we find the centre of depression lying near Yarmouth, while a north-east gale is blowing at Scarborough.

Sept. 29. The fall of the barometer at Falmouth compared with its rapid rise (amounting nearly to 0·75 in.) in the south-east of England, as well as the backing of

the wind to East at the Channel stations, showed that another cyclonic area was approaching the Channel. This passed over the southern stations in the course of the day, the oscillation being most remarkable at Kew. The gale was only felt with severity at Yarmouth, where it lasted for only seven hours, but blew with a velocity of 54 miles an hour at 8 a.m. on the 30th. The chief thing noticeable about this disturbance is, that it caused what Mr. Symons characterizes as the most important rainfall of the year, "averaging rather more than 1·25 in. over the greater part of England and Wales." The heaviest part of the fall occurred near Lowestoft.

In the evening of this day the barometer began to fall very seriously in Ireland, and a southerly gale set in, the notice of which will most appropriately come in the chronicle for October.

Remarks.

Wind.—The total number of hours during which the wind blew with a velocity above 30 miles an hour at each observatory in each month and in the entire quarter, is shown in the following table.

Observatories.	July.	August.	Septmbr.	Total.	Observatories.	July.	August.	Septmbr.	Total.
Valencia - -	77	43	37	157	Holyhead - -	112	66	110	288
Armagh - -	0	1	0	1	Stonyhurst -	0	10	0	10
Glasgow - -	*12	16	0	28	Alnwick Castle -	12	22	7	41
Aberdeen - -	0	9	10	19	Kew - - -	0	5	0	5
Sandwick - -	13	46	31	90	Yarmouth - -	14	12	85	111
Falmouth - -	43	24	71	138					

* Pencils not properly adjusted from 11 a.m. 20th till 10 a.m. 21st.

Holyhead as usual heads the list, the amount of high wind recorded there being nearly double that at any other station.

Pressure.— July.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·807	— ·209	30·219	17th, 11 p.m.	29·474	26th, 6 a.m.	0·745
Armagh - -	29·746	— ·169	30·120	17th, 11 p.m.	29·249	25th, midngt.	0·871
Glasgow - -	29·694	— ·178	30·078	16th, 2 p.m.	29·154	26th, 4 a.m.	0·924
Aberdeen - -	29·685	— ·193	30·034	16th, 9 p.m.	29·117	26th, 5 a.m.	0·917
Falmouth - -	29·906	— ·142	30·251	6th, 1 a.m.	29·461	2nd, 6 p.m.	0·790
Stonyhurst -	29·781	— ·129	30·149	16th, noon.	29·206	26th, 6 a.m.	0·943
Kew - - -	29·871	— ·113	30·246	6th, 9 a.m.	29·364	25th, 3 a.m.	0·882

Readings were everywhere below the average, to the extent of more than 0·1 in. The range was, as usual in the month, moderate in extent; the minimum readings were registered everywhere except in the south of England between midnight on the 25th and 6 a.m. on the 26th.

August.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·988	+ ·024	30·510	27th, noon.	29·345	24th, 9 a.m.	1·165
Armagh - -	29·961	+ ·097	30·467	27th, 9 p.m.	29·113*	24th, noon	1·354
Glasgow - -	29·923	+ ·106	30·436	28th, 8 a.m.	29·014	24th, 4 p.m.	1·422
Aberdeen -	29·907	+ ·083	30·400	28th, 9 a.m.	28·858	24th, 9 p.m.	1·542
Falmouth -	30·039	+ ·024	30·549	27th, 10 a.m.	29·123	18th, 9 a.m.	1·426
Stonyhurst -	29·991	+ ·106	30·486	27th, 8 p.m.	29·345	24th, 4 p.m.	1·141
Kew - -	30·038	+ ·082	30·497	28th, 1 a.m.	29·421	18th, 6 p.m.	1·076

* Doubtful, the curve for the day being indistinct.

Readings were slightly above the average. The range was greater than it had been in the same month in either of the two previous years, owing to the extensive changes of pressure at the end of the month; the minimum readings being recorded everywhere, except at Falmouth and Kew, during the storm of the 24th, while the maxima occurred at every station during the passage of the subsequent wave of high pressure, shown on Plate XLVIII, on the 27th and 28th.

September.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·877	+ ·042	30·341	13th, 10 p.m.	28·955	27th, 6 a.m.	1·386
Armagh - -	29·936	+ ·085	30·441	14th, 8 a.m.	*29·216	27th, 5 p.m.	1·225
Glasgow - -	29·919	+ ·117	30·439	14th, 9 a.m.	*29·314	27th, 11 p.m.	1·125
Aberdeen - -	29·938	+ ·126	30·473	16th, 11 p.m.	*29·373	28th, 3 a.m.	1·100
Falmouth - -	29·857	− ·153	30·236	13th, midngt.	28·802	27th, 5 p.m.	1·434
Stonyhurst - -	29·910	+ ·004	30·418	14th, 9 a.m.	29·030	27th, 9 p.m.	1·388
Kew - - -	29·786	− ·188	30·307	14th, 10 a.m.	28·947	28th, 2 a.m.	1·360

* These values differ from those given in Table I. App. I., which is compiled for astronomical time.

We find now a change in the distribution of pressure, the south of England again forming the exception, with readings below the average, while elsewhere the difference from the mean is in the opposite direction. The maxima reported all occurred in the middle of the month, while the minima came quite at the end.

Temperature.— July.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	58·4	−1·6	66·7	16th, noon.	50·3	10th, 5 a.m.	16·4
Armagh - -	57·4	−3·0	70·2	14th, 2 p.m.	47·7	11th, 5 a.m.	22·5
Glasgow - -	57·3	+0·5	70·3	14th, 2 p.m.	46·1	29th, 5 a.m.	24·2
Aberdeen - -	57·3	+1·4	72·0	17th, 11 a.m.	46·8	4th, 2 a.m.	25·2
Falmouth - -	59·4	—	71·0	16th, noon.	51·6	30th, 7 p.m.	19·4
Stonyhurst - -	57·5	−0·5	68·4	15th, 11 a.m.	*46·8	31st, 3 a.m.	21·6
Kew - - -	61·5	−0·3	79·5	17th, 5 p.m.	47·5	31st, 4 a.m.	32·0

* This value differs from that given in Table I. App. I., which is constructed for astronomical time.

The temperature of the month was very uniform, and not far from its average value, except at Armagh, where the difference was as much as 3°. The maxima recorded were very low except at Kew, and at Stonyhurst and Valencia they were more than 10° below the corresponding maxima in 1869 and 1870. The range was as usual greatest at Kew, and it was extremely limited at Valencia, only amounting to 16°·4.

The very unusual hour of the minimum at Falmouth is deserving of notice.

August.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	60·5	+1·6	71·2	6th, 4 p.m.	51·0	22nd, 2 a.m.	20·2
Armagh - -	59·2	+0·3	74·4	9th, 2 p.m.	45·7	15th, 5 a.m. 22nd, 5 a.m.	28·7
Glasgow - -	58·7	+1·6	74·5	10th, 3 p.m.	43·9	20th, 3 a.m.	30·6
Aberdeen - -	58·9	+2·9	73·5	6th, 5 p.m.	44·7	22nd, 5 a.m.	28·8
Falmouth - -	63·1	—	79·0	13th, 1 p.m.	52·5	27th, 6 a.m.	26·5
Stonyhurst - -	61·3	+4·1	80·3	10th, 3 p.m.	42·1	22nd, 5 a.m.	38·2
Kew - - -	64·3	+3·2	85·4	12th, 3 p.m.	46·4	28th, 6 a.m.	39·0

The temperature of August was about 2° higher than that of July at almost all stations; it was also above the average, to the extent of 4° at Stonyhurst, and of about 3° at Kew and Aberdeen. The maximum temperatures for the whole year occurred in the month at every observatory except Valencia, where a higher temperature had been recorded in May. The minima were higher than in the two preceding years, and so the range was not excessive.

September.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	55·7	−0·7	70·5	16th, 3 p.m.	39·0	24th, 6 a.m.	31·5
Armagh - -	52·1	−3·1	67·1	3rd, 2 p.m.	35·1	29th, 6 a.m.	32·0
Glasgow - -	52·0	−1·3	66·4	10th, 2 p.m.	34·9	30th, 7 a.m.	31·5
Aberdeen -	51·7	−0·9	66·3	3rd, noon.	36·3	30th, 7 a.m.	30·0
Falmouth - -	57·4	—	68·5	2nd, 1 p.m.	45·3	23rd, 10 p.m.	23·2
Stonyhurst - -	52·6	−1·3	69·2	1st, 2 p.m. 11th, 2 p.m.	36·3	25th, 6 a.m.	32·9
Kew - - -	57·2	+0·7	78·6	1st, 3 p.m.	37·4	23rd, 6 a.m.	41·2

September was a cold month, especially in the north, the deficiency from the average being 3° at Armagh. There was nothing remarkable in the extreme readings, but the minima were lower than usual. The range was highest at Kew, and least at Falmouth.

The following is the usual comparison of the five-day means for Kew with those for 43 years at Greenwich.

Date.	Variation.	Date.	Variation.	Date.	Variation.
	°		°		°
June 30–July 4	− 2·2	July 30–Aug. 3	− 1·5	Aug. 29–Sept. 2	+ 6·3
July 5–9 -	− 0·2	Aug. 4–8 -	+ 1·5	Sept. 3– 7 -	+ 2·1
„ 10–14 -	− 1·0	„ 9–13 -	+ 7·8	„ 8–12 -	+ 4·8
„ 15–19 -	+ 5·4	„ 14–18 -	+ 4·6	„ 13–17 -	+ 2·3
„ 20–24 -	− 0·3	„ 19–23 -	+ 2·7	„ 18–22 -	− 3·4
„ 25–29 -	− 2·5	„ 24–28 -	− 0·2	„ 23–27 -	− 3·3

July was slightly cold, excepting from the 15th to the 19th, but the deficiency of temperature was not nearly so great as it had been in the end of June. August and the first half of September were warm, especially during the third and the last five-day periods of the former month. The steady depression of the last few days of September prevented the average of the month from rising as much as 1° above the mean, as shown in the preceding table.

RAIN.

The amount of rain in July was excessive at all stations, the fall both at Plymouth and Florence Court being nearly three times the average quantity for the month. At Stonyhurst there was only one day without rain. August, on the other hand, was drier than usual, except at Roche's Point and at a few stations in the extreme north of Scotland. Rain was recorded on only four days on the east coast of England.

In September the distribution of the rain was uneven, the stations on the east and south coasts of Great Britain showing an excess, especially in Cornwall, while elsewhere the defect was general.

RAINFALL, 1871.

Positions of Gauges.			July.							August.							September.							Remarks.
Names of Stations.	Height of Gauge.		No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	
	Above Ground.	Above Mean Sea Level.																						
	ft. in.	ft.																						
Observatories.																								
Valencia	2 0	11	26	5·57	+2·90	1·08	6th	1	6th	13	2·74	−1·82	0·76	30th	0	–	12	2·58	−2·57	1·12	30th	1	30th	
Armagh	2 2	204	27	4·58	+2·06	0·61	1st	0	–	14	2·40	−0·57	0·75	19th	0	–	14	3·25	+0·91	0·89	8th	0	–	
Glasgow	1 10	180	27	4·62	+1·47	0·45	18th	0	–	13	3·66	−0·58	1·46	20th	1	20th	14	1·60	−2·03	0·38	8th	0	–	
Aberdeen	2 0	48	20	2·97	+0·76	0·67	23rd	0	–	10	2·13	−0·85	0·76	20th	0	–	15	1·86	−0·54	0·46	23rd	0	–	
Falmouth	1 10	167	21	6·32	+3·68	0·71	24th	0	–	11	1·56	−1·23	0·87	17th	0	–	19	8·00	+4·84	1·23	9th	2	9th & 29th.	
Stonyhurst	1 9	377	30	7·94	+4·08	1·60	8th	2	4th & 8th.	18	1·83	−2·79	0·49	24th	0	–	18	4·55	+0·16	0·89	27th	0	–	
Kew	1 10	20	20	3·26	+1·43	0·89	10th	0	–	8	0·95	−1·25	0·51	17th	0	–	11	3·69	+1·06	0·70	25th	0	–	
Telegraphic Reporting Stations.																								
Thurso	1 9	25	22	5·70	+4·39	1·24	25th	1	25th	18	3·47	+0·67	0·80	24th	0	–	17	3·11	−0·17	0·90	20th	0	–	
Wick	1 9	100	19	3·66	+2·28	0·70	24th	0	–	14	2·69	+0·37	0·92	18th	0	–	13	2·77	+0·39	0·70	21st	0	–	
Nairn	1 2	44	? 19	4·57	+3·06	0·74	25th	0	–	? 11	2·02	−0·83	0·76	18th	0	–	11	4·07	+2·02	1·18	21st	2	21st & 22nd.	
Leith	1 2	21	23	2·27	+0·31	0·30	18th, 23rd, & 29th	0	–	11	2·24	+0·21	1·15	20th	1	20th	13	2·21	−0·22	0·41	19th	0	–	
North Shields	10 0	107	21	3·00	+1·19	0·65	29th	0	–	4	1·05	−1·39	0·43	20th	0	–	19	3·50	+1·26	0·99	27th	0	–	
Scarborough	1 0	130	21	3·64	+1·23	1·24	4th	1	4th	4	0·57	−2·27	0·22	18th	0	–	10	4·96	+2·59	2·03	6th	2	6th & 27th.	
Yarmouth	*5 2	24	17	3·01	+1·15	0·44	27th	0	–	4	0·97	−0·97	0·61	17th	0	–	12	5·93	+3·25	1·83	29th	1	29th	
Ardrossan	1 2	13	25	3·32	+0·89	0·43	18th	0	–	13	3·55	−0·26	1·27	20th	1	20th	11	1·86	−2·18	0·35	30th	0	–	
Greenecastle	7 6	70	24	5·97	+3·35	0·63	2nd & 22nd	0	–	13	2·27	−1·02	0·50	20th	0	–	11	2·91	−0·44	0·57	28th	0	–	
Holyhead	1 2	44	? 14	? 2·60	? +1·64	0·34	24th	0	–	4	1·11	−0·96	0·42	20th	0	–	11	3·16	−0·51	0·60	24th	0	–	
Liverpool (Bidston Observatory).	0 6	180	22	3·79	+2·59	0·85	4th	0	–	10	1·10	−1·04	0·46	24th	0	–	14	3·80	+0·51	0·90	29th	0	–	
Roche's Point	1 9	23	24	5·35	+3·85	0·82	27th	0	–	13	3·41	+1·17	0·65	16th	0	–	12	4·65	−0·72	1·35	26th	1	26th	
Pembroke	1 2	125	22	3·43	+0·97	0·63	21st	0	–	12	1·47	−1·90	0·63	17th	0	–	14	6·11	+1·13	1·27	29th	1	29th	
Scilly	1 9	100	21	4·69	—	0·83	28th	0	–	11	1·26	—	0·79	17th	0	–	18	7·50	—	0·85	30th	0	–	
Plymouth	27 0	95	20	6·29	+4·40	1·04	29th	1	29th	9	1·96	−0·54	1·00	17th	1	17th	15	5·42	+0·50	0·92	9th	0	–	
Portsmouth	1 0	16	17	3·40	+1·60	0·92	10th	0	–	5	0·93	−1·08	0·57	17th	0	–	12	5·31	+1·91	1·05	6th	1	6th	
Dover	23 0	46	13	2·35	—	0·60	24th	0	–	7	0·61	—	0·30	17th	0	–	16	4·84	—	0·95	23rd	0	–	
London	1 3	—	19	3·74	+1·97	1·08	10th	1	10th	7	0·86	−1·46	0·55	17th	0	–	14	5·13	+2·52	1·03	23rd	1	23rd	
Extra Stations. (Information supplied by societies, private individuals, and others.)																								
Barnstaple	0 8	31	22	6·01	+3·76	0·64	30th	0	–	7	1·75	−1·25	0·67	18th	0	–	14	4·85	+0·81	0·95	29th	0	–	
Dublin	3 0	57	28	4·39	+2·01	0·75	24th	0	–	12	1·07	−1·47	0·30	17th	0	–	13	4·05	+1·73	1·04	9th & 26th.	2	9th & 26th.	
Enniskillen (Florence Court).	11 4	300	27	8·22	+5·24	1·26	10th	1	10th	18	3·38	−0·20	0·58	24th	0	–	10	2·19	−1·19	0·58	30th	0	–	
Galway	8 2	30	29	6·20	+2·87	0·74	7th	0	–	19	3·64	−0·34	0·96	19th	0	–	11	2·18	−2·45	0·55	3rd	0	–	
Guernsey	12 0	204	15	4·00	+2·42	1·07	26th	1	26th	9	1·43	−0·96	0·52	17th	0	–	17	6·02	+2·43	1·11	23rd	1	23rd	
Helston	5 0	115	17	5·25	+2·77	0·90	11th	0	–	9	1·35	−1·38	0·70	17th	0	–	16	8·27	+5·12	1·39	29th	2	9th & 29th.	
Jersey	36 11	39	15	4·63	+2·88	1·46	27th	2	11th & 27th.	7	2·16	−0·14	1·26	22nd	1	22nd	19	5·55	+2·55	1·05	24th	1	24th	
Rugby	3 0	383	27	4·19	+2·15	0·65	11th	0	–	10	1·48	−1·13	0·30	16th	0	–	15	4·68	+1·88	1·71	29th	1	29th	
Sandwick, Orkney Islands	2 0	78	19	2·85	+1·02	0·49	8th	0	–	17	2·93	+0·02	0·85	24th	0	–	16	2·85	−0·95	1·33	21st	1	21st	

* The rain gauge at Yarmouth was placed on a stand at the beginning of the quarter, to improve its exposure.

PART 4.

The sudden fall of the barometer, which commenced in Ireland soon after midday on September 30th, extended to all parts of the British Islands later in the day, preceded by a considerable rise of temperature and a shifting of the wind to S., with rain. The general condition of pressure at 6 p.m. on that day is shown in Fig. 40, Plate LV., at which time a hard southerly gale was blowing in the south of Ireland, extending subsequently to Falmouth and Holyhead. At 8 p.m. a remarkably sudden interruption of the barometric fall occurred at Valencia, lasting till midnight, when the fall was resumed with less rapidity than had been previously manifested. Simultaneously with this cessation the wind lulled, and veered to W., with finer weather; but none of these changes are recorded at the other observatories, excepting Falmouth, and there they were much modified.

Oct. 1. At 8 a.m. the centre of the disturbance lay over the north of Ireland. (Fig. 41.) Gradients were not very steep over our islands, but in the Channel and over France they were more so. In the Bay of Biscay a fresh westerly gale was blowing, and a moderate westerly gale on our south-west coasts, drawing round to S.W. in the Straits of Dover. In the north fresh south-easterly breezes prevailed. Rain had been very general, and still fell, except in the west. During the day the gale moved eastwards, and at night a general recovery had set in. In the evening thunderstorms occurred in the north-east of England. The following is the tabular statement of the gale as registered by the various anemometers :*

Observatories, Sept. 30th, Oct. 2nd, 1871.	Velocity, 30–40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	1 p.m. (30th).	S. by W.	6 p.m. (30th).	S.	49	3	9 p.m. (30th).	W.S.W.	8	7 p.m. (30th).	S.	57	Velocity again rose to 38m. from the westward during the middle of the 1st Oct.
Aberdeen	6 a.m. (1st).	S.S.E.	6 p.m. (1st).	E by S.	47	21	8 p.m. (2nd).	S.E. by E.	38	1 a.m. (2nd)	E.	54	——
Falmouth	11 a.m. (1st).	W. by S.	2 p.m. (1st).	W. by S.	44	4	6 a.m. (2nd).	W. by N.	19	3 p.m (1st).	W.	49	——
Holyhead	10 p.m. (30th).	S.S.E.	11 p.m. (30th).	S.S.E.	46	4	5 a.m. (1st).	W. by S.	7	Midnt. (30th).	S. by E.	49	Velocity increased again during the evening of the 1st, and reached 35m. from W.N.W. at 2 a.m. 2nd.

* At about 4h. 40m. a.m. the wind at Stonyhurst backed very suddenly round the compass, the gyration commencing at S.E. and reaching the same point again in a very few minutes. Although nothing of the kind is shown elsewhere, yet at Armagh and Kew, as well as at Stonyhurst, the direction was exceedingly unsteady all day.

Oct. 2. By 8 a.m. the centre of the storm lay over the North Sea (Fig. 42, Plate LV.) and the barometer had risen a quarter of an inch in the south of Ireland. The wind veered to N.W. in England, Ireland, and France, blowing a fresh gale at the mouth of the Channel and in the Bay of Biscay, while easterly breezes were felt in Scotland, blowing with the force of a gale at Aberdeen. Temperature fell somewhat in the east of England, but changed little elsewhere, and the weather became showery generally. The barometer now rose briskly in the north, the change gradually extending southwards, so that by 8 a.m. on the 3rd the lowest readings lay over the eastern and south-eastern stations. A fresh easterly gale had set in at Shields, while that at Aberdeen subsided. The W.N.W. gale in the south-west also moderated a little, but otherwise few changes occurred in the winds.

Temperature fell several degrees in the south, and the weather, though still showery, improved slightly.

Oct. 4. The increase of pressure noticed yesterday had extended to all coasts. The depression over the south-eastern stations had become much less marked, and a slight anticyclone appeared over the south of Norway. Thus, while light breezes circulated cyclonically round the low pressure in the S.E., giving us easterly airs in the north of England, and northerly in the west and south, fresh south-westerly breezes set in over the north of Scotland and west of Norway. Temperature fell a few degrees; but immediately after 8 a.m., as the southerly wind extended, it rose rapidly, especially at Glasgow, see Plate LVI. The weather remained rather cloudy and showery.

The mercury then fell rather briskly on the northern coasts while it rose in the south, and during the next three days readings were generally highest in the south, lowest in the north. South-westerly and westerly breezes were prevalent, which, owing to a local decrease of pressure in the west and south during the evening of the 6th, freshened considerably and attained a velocity of 41m. at Alnwick Castle by 2 p.m. At 8 a.m. on the 7th a moderate south-westerly gale was felt at the south-eastern stations, with fresh south-westerly breezes in the north-west of France, by which time, however, the wind had veered to N. in the west and fallen light (see Fig. 43, Plate LVI.). A great deal of rain fell during this interval, especially on the 6th. Lightning was seen in Ireland on both the 4th and 5th, and a thunderstorm occurred at Glasgow on the latter day.

On October the 8th and 9th the barometer continued to rise at all stations; and as readings were then highest on our western coasts while they were lowest in Norway or Denmark, light north-westerly to northerly winds prevailed. Temperature fell very considerably, and though some rain fell in the north of Great Britain (notably at Aberdeen on the 8th) and thunderstorms occurred in the north-east of England, the weather elsewhere was fine generally. This will be readily inferred from the large diurnal range of temperature shown by the various thermograms in Plate LVII. Towards night time

on the 9th pressure began to give way slowly in the west, but the change did not reach our eastern ports till the following day.

Oct. 10. At 8 a.m. an anticyclone, whose maximum readings exceeded 30·4 ins. was situated over the north and east of England, the gradient from Liverpool to Valencia being 0.05 in. while that from Scarborough to Oxö was 0.03 in. per 50 miles. The wind, which had gradually veered to E. in the south during the 9th, now drew into S.E. at our south-western stations, and freshened, its velocity increasing to 40m. an hour at Valencia during the morning. Temperature rose rapidly, and rain fell in the district named. Simultaneously with these changes there is a total disappearance of the regular diurnal range of temperature at the south-western observatories, see Plate LVII. Towards evening pressure gave way in Scandinavia also, and by the next morning a depression appeared off the west coast of Norway, which had produced a considerable increase of north-westerly wind on the evening of the 10th over Scotland and the Irish Sea, and of W.S.W. wind in the north-east of England. At Sandwick and Aberdeen the velocity exceeded 40 miles an hour for several hours. Slight rain fell in Caithness, but in the greater part of the kingdom the weather was dry.

Oct. 11. Pressure was apparently highest over Germany and the east of France, whence a band of high readings (exceeding 30·2 ins.) extended north-westwards, covering all the east, north, and north-west of Great Britain. On the western side of this band moderate south-easterly breezes were prevalent, while on our eastern shores and in Denmark light westerly winds were reported. The wind in the south of Norway was very singular, being light from E.N.E. The sky was cloudy in the west, and a good deal of fog prevailed, but the weather was generally dry.

Very little change, beyond a general increase of pressure, was shown at 8 a.m. on the 12th, but during the early morning temperature had been very low in the south-east of England and the west of Scotland (see the Kew and Glasgow records, Plate LVII.), the recovery from which conditions was extraordinarily rapid. After this pressure began to give way again slowly in the west and north, and the change spread gradually over the other parts of the kingdom. As this occurred the southerly winds freshened in the western and northern regions, blowing very strongly in Ireland on the 13th and 14th. Between the 13th and 16th the mercury stood highest in the S.E. and lowest in the W. and N.W. Rain fell at first in the west and gradually extended eastwards, so that on the 15th some was recorded at nearly all stations. Aurora were seen on several evenings.

After October 16th a slight alteration occurred in the general distribution of barometric pressure. The mercury rose a little over the North Sea, while it fell in the south-west of France, so that the highest readings existed over Denmark and the south of Sweden. Temperature remained high generally, the weather being also cloudy and damp.

There is something remarkable in the manner in which the wind at Glasgow veered completely round the compass between 7 p.m. and 10 p.m. on the 16th; a similar but

still more sudden change being recorded at Stonyhurst shortly before 9 a.m. 17th. In both cases showers occurred and temperature oscillated somewhat, but pressure was not perceptibly affected, nor was anything peculiar noted in the weather registers for those times.

Oct. 18. A decided fall of the barometer took place in the west, and extended in a less marked manner to the most eastern stations. Temperature rose still higher, and the southerly winds increased considerably in the west. In Ireland and the Irish Sea they reached the force of a fresh gale, which lasted all day, while strong S.S.E. winds were felt at Sandwick some hours later. Rain fell except in the N.E.

Oct. 19. The disturbance just noted was passing off, the wind on our south-western coasts veering westwards as it did so, and the barometer rising steadily. Temperature fell in the rear of the depression, but it was not until after mid-day on the 20th that any decided change of that kind was felt at Kew. During the evening of that day, however, the wind shifted suddenly to N.W. in the south-east of England, and a very marked fall of the thermometer took place during the night. Aurora was seen at Sandwick.

Oct. 21. A sudden change had occurred in the night. The barometer had fallen very briskly in the W. and N.W., accompanied by a "backing" of the wind towards S.E., and a rapid rise of temperature in the same localities. This change is all the more noticeable from its having followed so rapidly upon a sudden decrease of temperature, except in the south-west;—See Plate LIX. At 8 a.m. a disturbance was advancing over our western coasts, while some additional local depression lay over the North Sea. The wind increased considerably from S.E. in the west, veering to S. as the centre travelled northwards, and attaining the force of a gale in several places.

Observatories, Oct. 21st, 1871.	Velocity, 30-40 Miles per Hour.		Velocity, Exceeding 40 Miles per hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	11 p.m. (20th).	S.E. by S.	Midnt. (20th).	S.E. by S.	46	7	7 a.m. (21st).	W.S.W.	8	2&3a.m. (21st).	S.E. by S.	50	——
Sandwick	11 a.m. (21st).	S.S.E.	—	—	—	—	5 p.m. (21st).	S. by E.	6	Noon (21st).	S.S.E.	37	——
Falmouth	10 a.m. (21st).	S. by W. (?)	—	—	—	—	2 p.m. (21st).	W. by N.	4(?)	1 p.m. (21st).	S.S.W.	40	Clock of anemometer had stopped from 7 p.m. 20th till 9 a.m. 21st.
Holyhead	4 a.m. (21st).	S.	6 a.m. (21st).	S.	48	7	11 p.m. (21st).	W.	19	9 a.m. (21st).	S.	53	——

At the south-eastern stations, where the wind was very light, a marked freshening occurred subsequently, and towards noon strong breezes set in at our most northern

ports also. The sky became very cloudy, rain fell generally, but the unsettled weather soon passed off.

Oct. 22. A brisk recovery had taken place over these islands and France, extending also across the North Sea to Skudesnaes, but Norway and Denmark had hardly yet felt it. A large area of high pressure lay over the French and our southern stations, in which regions calms and variable airs prevailed, while moderate westerly breezes were felt along our eastern shores, and south-westerly winds in the W. and N. The weather was fine, but foggy in the S.W. Towards evening, however, the mercury again began to fall in the W. and the wind freshened immediately from the southward.

Oct. 23. The fall of the mercury had been felt both in the west of France and on our western and north-western coasts, while a brisk rise had occurred over the North Sea, so that the highest readings were now found in Denmark, Holland, the north of France, and south-east of England. Fresh S. to S.W. winds were blowing along our western shores, and easterly breezes in the west of France; but calms and light airs prevailed in the region of highest pressure. The weather became dull; some rain fell in the south of Ireland, and fogs were general in the south and south-east.

From this time until the 25th, the barometrical changes were slight and gradual; the winds were light from various directions, the weather was cloudy, with fog in many places, and some rain fell generally. After the 25th, however, a steady fall of the mercury set in, commencing in the N.W., and being preceded in nearly all parts of Great Britain by a decided fall of the thermometer (see Plate LX.).

Oct. 26. At 8 a.m. the barometer stood highest about the mouth of the Channel and in the north of France, lowest off the northward of Scotland and west of Norway, and the mercury was falling very briskly in the W. and N. South-westerly winds prevailed over the British Isles and North Sea, blowing moderately in the west but being light in the east, while light easterly breezes were felt in the Bay of Biscay. The sky was overcast, except in the west of France, with rain at some of our western stations, and fog in the S.E. Towards evening the wind rose to a gale in the W., and in the night a fresh southerly gale was felt in the south of Ireland, at the mouth of the Channel, and on several parts of our western coasts.

Oct. 27. (Fig. 44, Plate LX.) Readings were now highest in Holland and the north of France and lowest to the north-westward of Scotland, the steepest gradients being those in the north. S.W. gales were still felt in Scotland, and southerly gales had reached the south of Norway, while moderate to fresh south-westerly breezes blew over the remaining part of north-western Europe. In the west of France the wind was still light from east. At the western and northern observatories considerable unsteadiness in pressure is noticed near the time of the lowest reading, but not so in the records for the English stations; and it will be observed, further, that after the lowest reading

had been reached, no appreciable recovery took place except in the north. Temperature, however, rose slightly in that region, briskly in the south-east, but fell elsewhere, the weather remaining dull generally, with rain in the west and north.

Oct. 28. The barometer had again been falling steadily at Valencia since about 10 p.m. on the 27th, the fall extending so that at 8 a.m. the isobars over our western stations ran almost due N. and S. The wind had backed to S.S.W. on our south-western coasts, and to S.S.E. over the Irish Sea, but was moderate, while light south-westerly winds were felt at our other stations, and strong southerly winds in the south of Norway. Immediately after noon the fall of the mercury became very rapid at Valencia, and the change soon extended to the other western observatories. The wind backed still more towards E., and as it rose to a gale it veered again, so that when the lowest reading was reached at Valencia (at midnight), a fresh southerly gale was blowing, which continued with increased force through the following day. At the more eastern stations it was not nearly so heavy.

Observatories, Oct. 28th–30th, 1871.	Velocity, 30-40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	7 p.m. (28th).	E. by N.	8 a.m. (29th).	S.S.E.	47	14	Midnt. (29th).	E. by N.	29	3 p.m. (29th).	S.E.	54	—
Falmouth	5 p.m. (28th).	S.	5 p.m. (28th).	S.	42	8	7 a.m. (29th).	S.S.W.	14	11 p.m. (28th).	S.S.E.	46	—
Holyhead	11 p.m. (28th).	E. by N.	3 a.m. (29th).	S.E. by S.	42	10	3 p.m. (29th).	S. by E.	16	6 & 11 a.m. (29th).	S.E. by S. & S. by E.	45	—
Yarmouth	5 a.m. (29th).	S.S.E.	—	—	—	—	9 a.m. (30th).	S.E.	28	6 p.m. (29th).	S.E. by S.	41	For one hour only.

Temperature rose as the southerly wind set in. Wet unsettled weather continued except in the S.E., the rainfall being especially heavy at the south-western stations.

At 8 a.m. on the 29th (Fig. 45, Plate LXI.) the centre of the disturbance lay to the westward of the Irish coast, but no recovery had taken place at Valencia, and very little at Falmouth, while at the northern and north-western stations a very brisk one had set in. In the west of France pressure gave way considerably. Under these circumstances the wind backed still more towards E. on our north-western coasts and in the south of Norway, and continued generally strong at the western stations. Temperature had risen considerably in the W. and N., where heavy rain continued to fall. Lightning and hail occurred in the south of Ireland.

Oct. 30. The northern recovery had continued and extended over the Irish stations, while a further fall of the barometer took place in the west of France, so that the centre of the low pressure still lay off our south-west coasts, while an anticyclone appeared to have been formed in the south of Norway. The wind backed to E. or E.S.E.

in Great Britain and France, to E.N.E. in Ireland, where it continued to blow very freshly. Temperature fell a little at the Irish stations, and to the extent of several degrees in the west of France, *but rose in Scotland*, notwithstanding the E. wind, where, too, the weather improved somewhat during the day. In the west, however, rain again fell, and lightning was seen at night in the south of Ireland.

Oct. 31. The barometer had continued to rise except at Biarritz, the change being greatest on our western and northern coasts. A rather large depression lay apparently over the Bay of Biscay. The wind had become easterly on all our coasts, and was strong generally, especially at Holyhead and Yarmouth, as will be seen by the following table:—

Observatories, Oct. 31st to Nov. 2nd, 1871.	Velocity, 30-40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	9 p.m. (31st).	E. by N.	—	—	—	—	11 p.m. (31st).	E. by N.	2	9 p.m. (31st).	E. by N.	34	—
Falmouth	1 p.m. (31st).	E. by S.	—	—	—	—	10 p.m. (31st).	S.E. by E.	9	8 p.m (31st).	E. by S.	36	—
Holyhead	7 a.m. (31st).	E.N.E.	2 p.m. (31st).	E.	49	10	3 a.m. Nov. (2nd).	E.	44	3 p.m. (31st).	E.N.E.	60	—
			8 a.m. Nov. 1st.	E.N.E.	48	16							
Kew	10 a.m. (31st).	E. by N.	—	—	—	—	4 p.m. (31st).	E. by N.	6	2&3p.m. (31st).	E. by N.	32	—
Yarmouth	2 a.m. (31st).	E. by S.	6 a.m. (31st).	E. by S.	42	40	4 a.m. (2nd).	E.	50	11 a.m. (1st).	E.	50	—

The weather was not very cold anywhere, but in some places temperature fell, while in others it increased. The sky remained very cloudy, with rain at Plymouth. At about noon a decided oscillation of the mercury was observed at Falmouth, accompanied at first by a backing of the wind to N., with a lull, and then by a return of strong breezes as the wind veered to S.E., and the barometer rose. A very similar change occurred at Valencia a few hours later, from which it would appear as though some small disturbance had travelled in a north-westerly or west-north-westerly direction over our most south-western coasts. Rain fell at all the southern stations.

November commenced with pressures varying from 30·35 ins. at Oxö, to 30·05 ins. at Greencastle, and 29·6 ins. at L'Orient and Biarritz. The winds were consequently chiefly easterly and fresh, (Galway reporting a strong N.E. gale at 9 a.m.,) but drew into S.E. over Scotland, where they were light. Rain had fallen in all parts of the kingdom and still continued in the south-west, the sky being very cloudy everywhere.

By 8 a.m. on the 2nd a singular change had occurred. Owing to a sudden fall of the barometer in Norway, accompanied by a brisk rise on the south-western coasts, the area of highest pressure had been removed to the north of Scotland, while the lowest readings remained in the south of France. The wind fell light generally, and though

it had undergone little change in the United Kingdom it backed towards N. in the west of France, and north-westerly breezes set in on the Norwegian coasts. Temperature (which was very uniform over the north-west of Europe) showed no decided change. The sky remained very cloudy. In the evening bright aurora was seen at Thurso, and a "strong magnetic storm" was reported from Aberdeen.

A glance at Plate LXII. will be sufficient to see how little change occurred in any of the elements recorded instrumentally at the various observatories until the 5th, when the mercury began to fall slowly at all stations, and a well-marked oscillation was recorded at Stonyhurst. The weather in this interval was cloudy, and rain fell at our northern stations. The fall of the barometer in our islands, to which reference has just been made, appears to have been preceded by a similar change of about 0·2 in. in the south-west of France, between 8 a.m. on the 3rd and 4th, and by a rise of nearly the same amount in Denmark. Simultaneously with the barometrical oscillation at Stonyhurst we have recorded there a marked increase of easterly wind, shortly preceded by a similar increase in the south-east of England. At Yarmouth a velocity of 58 miles an hour was reached at 6 p.m., 5th.

At 8 a.m. on the 6th readings were still as high as 30·25 ins. over Denmark and the south of Norway, whence they decreased to about 29·75 ins. at the mouth of the Channel and on the shores of the Bay of Biscay. The mercury was falling generally—unsteadily at Kew. Temperature was rising in the south-west and west. Easterly winds, generally of little force, still held in the south, with light south-westerly winds on our northern coasts and light south-easterly breezes in Norway. The weather was very cloudy except in the east, and during the day rain fell at our western and northern stations.

After midnight of the 6th, however, the fall of the barometer ceased at the south-western stations, and in the Bay of Biscay a well-marked increase of pressure subsequently occurred, while in the north and north-east the fall continued for more than 24 hours longer. It thus happened that by 8 a.m. on the 8th, a decided but shallow depression had been formed between the Scotch and Norwegian coasts, and while light to moderate north-westerly breezes were felt in the British Isles and north of France, light south-westerly airs were reported from the Netherlands and Straits of Dover, with fresh south-easterly winds in Norway. A great deal of fog prevailed over the country on the 7th, rain fell in Scotland, and some showers on our western coasts. At Falmouth extraordinarily heavy rain fell during the middle of the day, no less than 2 ins. in four hours, (Plate LXIII.) the greater portion of that quantity falling in even a much less space of time. During its prevalence the wind shifted from E. to N. and N.N.W. After 8 a.m. (on the 8th) the depression in the north appears either to have moved northwards and become much deeper or else a new disturbance advanced from the westward towards our most northern stations. The latter view is supported by the deep concavity shown in the Armagh barogram on this day. In the evening a N.W. gale set in at Sumburgh Head, with squalls of hail, and rain fell at some part of the day in nearly all parts of the country. Lightning was seen at Holyhead.

Nov. 9. The highest readings (exceeding 29·9 ins.) were now found to the south-westward of our Islands, while the lowest lay a little to the northward of the Shetlands, gradients being steepest between Sumburgh Head and Caithness (*see* Fig. 46, Plate LXIII.). Temperature decreased generally and was low in the east of England. North-westerly winds still prevailed over our Islands blowing a moderate gale in Caithness, while a fresh S.W. gale was felt at Sumburgh Head, and a strong W.S.W. breeze at Skudesnaes. The sky was generally clear except in the north of Scotland, where snow was falling, during the day the centre seems to have moved south-eastward, producing the hollow shown by the Aberdeen barogram about midnight, together with the W. and W.N.W. gale felt at that station, and in the west of Scotland. Some rain fell in the east of England and French stations. A very brilliant auroral display was witnessed at the western and northern stations in the evening.

Nov. 10. The centre of disturbance had now travelled eastward, and at 8 a.m. it lay between Sumburgh Head and Skudesnaes (*see* Fig. 47, Plate LXIII.). At the latter station the barometer had fallen 0·2 in.: while in Scotland a brisk recovery was in progress. The wind had shifted to N.W. at Sumburgh Head, and while fresh gales or strong breezes from that quarter lingered at our most northern stations, with light W.N.W. winds on our other coasts, strong south-westerly breezes blew on the eastern shores of the North Sea, attaining the force of a gale at Oxö. The sky became clear on our eastern and southern coasts, but was cloudy and the weather showery elsewhere, snow and hail falling in several places during the day. In the evening brilliant aurora was seen all over Western Europe.

Nov. 11. The recovery of pressure continued briskly in our Islands and had extended to Norway, while a sudden decrease had set in over the Bay of Biscay. The gales had died down, the wind veered to N. on our coasts (though in the north it soon backed again) and an easterly breeze which had just shown itself in the south-west of France on the 10th extended over the Bay of Biscay. Showers of snow still fell at Sumburgh Head and Christiansund, but in the United Kingdom generally the weather, though showery, improved considerably.

During the 12th the mercury continued to rise very generally, except at Valencia. Readings became *very* uniform over the British Isles, the winds were very variable, and the sky was clear. At the north-western stations a light south-westerly breeze showed itself. On the 13th an extensive area of high pressure passed over us to the eastward, and by referring to Plate LXIV. it will be seen that the Irish and Scotch barometers began to fall after midday, followed by those at the English stations some hours later. As the mercury fell the winds became generally southerly in our Islands, strong in the west; temperature rose quickly, and rain set in at the northern stations.

Nov. 14. The fall of the mercury on our coasts had been accompanied by a very brisk rise over France, and at 8 a.m. readings varied from 30·4 ins. at Paris to 29·6 ins. in the north of Scotland (*see* Fig. 48, Plate LXIV.). The barometer was still falling. Southerly to south-westerly breezes prevailed over the whole of our islands and the eastern shores of the North Sea, blowing strongly at the western and northern stations,

while light easterly winds still held in the south-west of France. During the day the wind increased considerably, with rain, in all parts of the Kingdom, but reached the force of a gale in the west and north only.

Observatories, Nov. 13-14, 1871.	Velocity, 30-40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	5 a.m. (13th).	S.E.	—	—	—	—	1 p.m. (14th).	S.W.	32	7 a.m. (14th).	S. by E.	41	For one hour only.
Sandwick	3 p.m. (14th).	W. by S.	—	—	—	—	10 p.m. (14th).	W. by N.	7	3 p.m. (14th).	W. by S.	38	—
Falmouth	11 a.m. (14th).	S. by W.	—	—	—	—	10 p.m. (14th).	S.W.	11	7 p.m. (14th).	S.S.W.	44	For one hour only.
Holyhead	6 p.m. (13th).	S.	10 p.m. (13th).	S.	48	21	8 p.m. (14th).	S.W.	26	3 p.m. (14th).	S.	55	—

Soon after noon the barometer began to rise at Valencia.

Nov. 15. The centre of the disturbance had travelled north-eastwards, and reached Norway. The mercury was rising on our coasts, the minimum reading having been registered at Kew at 3 a.m. and the recovery having commenced at 6 a.m., the wind veered towards N.W. or N. as the depression passed off. Temperature fell, the sky became temporarily much clearer in the south-east and east. The centre of the disturbance just noticed appears to have changed its course on reaching the Norwegian coast, and to have travelled south-eastwards, so that at 8 a.m. on the 16th it lay over the Sound and Denmark. The effect of this change on the barometrical readings in our islands is shown very clearly in Plate LXIV. by the marked fall which took place at our northern observatories, accompanied by N. to N.W. winds. Temperature continued to fall very considerably as the wind drew northwards, and cold showers occurred at our northern and eastern stations as well as in France. During the 16th the centre *seems* to have moved almost due south, and moderate to fresh northerly gales were felt over Great Britain.

Observatories, Nov. 16-17, 1871.	Velocity, 30-40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Sandwick	3 p.m. (16th).	N.W.byN.	5 p.m. (16th).	N. by W.	44	8	10 a.m. (17th).	N.N.W.	19	7 p.m. (16th).	N. by W.	47	—
Holyhead	7 p.m. (15th).	N.N.W.	9 p.m. (15th).	N.W. byN.	46	4	8 a.m. (16th).	N. by E.	13	10 p.m. (15th).	N.N.W.	50	—
	1 p.m (16th)	N.W.	Midnt. (16th).	N.W.byW.	48	10	2 p.m. (17th).	N.N.E.	25	4 a.m. (17th).	N.	51	
Alnwick Castle	3 a.m. (17th).	N.W.byW.	—	—	—	—	7 a.m. (17th).	N.W.byW.	4	6 a.m. (17th).	N.W.byW.	34	—
Yarmouth	11 a.m. (17th).	N.E.	—	—	—	—	1 p.m. (17th).	N. by W.	2	Noon (17th).	N.	32	—

Nov. 17. (Fig. 49, Plate LXV.). The depression had now reached Holstein, and moderate to fresh northerly gales were still felt along our eastern coast, fresh northerly winds in the west and south-east, and snow in the east. At Valencia, however, the wind was veering towards E. . A very sudden change then occurred. The disturbance became suddenly dispersed; the barometer rose rapidly in the south and east, less in other places, and while the wind *veered* to S. at Valencia, it fell very light and began to back towards the same point elsewhere, with moderately fair weather.

At 8 a.m. on the 18th a large area of high pressure lay over the greater part of our islands, the north-west of France, and the Bay of Biscay; the relative distribution of pressure, temperature, and wind over western Europe being very similar to that experienced on the 13th. This area moved very slowly eastwards, and as it did so the barometer rose fast at the continental stations, till by 8 a.m. on the 20th, the anti-cyclone had become merged in the generally high pressure existing over Denmark, the Netherlands, and north-east of France (*see* Figs. 50 and 51, Plate LXV). At the same time temperature rose quickly in the west and north, the southerly wind spread gradually over the United Kingdom and the north-west of France, increasing to a moderate or fresh gale in the west and north during the 19th, when also the weather became rainy in the north and north-west.

Observatories, Nov. 18-21, 1871.	Velocity, 30-40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	3 p.m. (18th).	S.E. by E.	9 a.m. (19th).	S.E. by S.	47	40	4 a.m. (21st).	S. by W.	61	8 p.m. (19th).	S.S.E.	54	—
Armagh	7 p.m. (19th).	S. by W.	—	—	—	—	Noon (21st)	S.S.E.	41	11 a.m. (20th).	S.	39	—
Glasgow	4 p.m. (20th)	S.	—	—	—	—	8 p.m. (20th).	S. by E.	4	5 p.m. (20th).	S.	33	—
Aberdeen	1 p.m. (20th).	S.	—	—	—	—	5 p.m. (20th).	S.	4	2 p.m. (20th).	S.	35	—
	10 p.m. (20th).	S.	—	—	—	—	7 a.m. (21st.)	S.	9	5 a.m. (21st).	S. by E.	33	—
	11 a.m. (21st).	S.	—	—	—	—	1 a.m. (22nd).	S.	14	2 p.m. (21st).	S.	39	—
Sandwick	7 p.m. (19th).	S. by E.	2 a.m. (21st).	S. by E.	45	27	8 a.m. (22nd).	S. by E.	61	10 a.m. (21st).	S. by E.	50	—
Falmouth	9 p.m. (19th).	S. by E.	5 a.m. 21st).	S.E. by S.	41	3	3 p.m. (21st).	S.E. by E.	42	5 a.m. (21st).	S.E. by S.	42	—
Holyhead	5 a.m. (19th).	S. by E.	1 p.m. 19th)	S.	48	50	8 a.m. (22nd).	W. by S.	75	3 p.m. (20th).	S. by E.	55	The change to W. by S. only took place during the last hour.
Yarmouth	—	—	—	—	—	—	—	—	—	—	—	—	Wind increased to 30 miles per hour from S. or S.S.E. several times on the 21st but did not exceed that velocity.

Plate LXV. is very interesting as showing how gradually the changes just noted

spread over us, and how continuously the wind blew strongly from the southward on our western coasts. It also points to the most singular unsteadiness of the wind at Stonyhurst, both in direction and force, and shows how entirely local are the anemometrical effects occasionally exhibited at that observatory.

Nov. 21. The decrease of pressure continued to extend eastward and south-eastward, but a sudden recovery had set in at Valencia soon after 4 a.m. accompanied by a fall of temperature, and a temporary shift of the wind to N.W. At 8 a.m. the general conditions of pressure, and the gales reported were those shown in Fig. 52, at which time a light north-westerly wind was still felt at Valencia, and the recovery of pressure was extending gradually to the north of Ireland. In the morning the gale again increased at Aberdeen, but subsided soon after midnight. By the morning of the 22nd the recovery had extended to the western shores of Great Britain, accompanied by a veering of the wind to W. in most places, and the southerly gales gradually disappeared from our neighbourhood. Temperature fell generally and was low, and the weather, which had been very showery, improved somewhat, but became foggy in the south.

At 8 a.m. on the 23rd readings, though lowest in the north, and highest over the Bay of Biscay, were uniform. The winds were very light and variable, and the sky was cloudy except in the north. In the afternoon the mercury began to fall slowly in the south-west and during the night a shallow depression advanced to the mouth of the English Channel. The disturbance then extended gradually over France and the Bay of Biscay, causing the mercury to continue falling in the south (as is shown by the Falmouth barogram, Plate LXVI.), while in the north the barometer rose slowly. Temperature changed irregularly but remained low, and the weather remained cloudy and foggy, with rain in the west.

Nov. 25. At 8 a.m. readings varied from about 30·2 ins. in Norway and 30·15 ins. in the north of Scotland to 29·7 ins. in the west of France. Easterly winds were general at the southern stations and variable airs in the north. The weather was uniformly cold and cloudy, and a lunar halo had been seen at Nairn on the previous night. Beyond a general but gradual increase of pressure very little change occurred until after the 27th, when the barometer began to fall both at the Scandinavian and French stations, and the change extended in a much less degree to our islands. Some rain fell in the northern parts of the kingdom.

Although (as will be seen by referring to Plate LXVII.) very little effect was produced in the pressure over the United Kingdom, yet the gradual passage of a depression over France between the morning of the 28th and the end of the month (see Figs. 53 to 55) was sufficient to produce strong easterly breezes on our coasts, which gradually backed to N.E. and blew with the force of a gale in some places. Thus at Falmouth the velocity exceeded 40 miles per hour for several hours on the 27th and 28th, and at Holyhead a similar effect was observed on the 29th. The weather continued uniformly cold. Rain and hail fell in the west and north, snow in the south-east, and thunder and lightning occurred in some places.

Dec. 1. The centre of the disturbance had reached Germany and the east of France (Fig. 56) and as the barometer had risen at all the British and Irish stations gradients for north-easterly winds became steep on our east and south-east coasts. The wind rose to a fresh gale from N. and N.E. on many parts of our eastern and western coasts, and to a strong breeze in other places.

Observatories, December 1, 1871.	Velocity, 30–40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	3 p.m. (30th Nov.)	N.E. by N.	—	—	—	—	5 p.m. (30th Nov.)	N.E. by N.	2	3 p.m. (30th).	N.E. by N.	34	—
Holyhead	11 a.m. (30th Nov.).	N.E. by E.	Noon (30th)	N.E.	42	12	Midnt. (1st).	N.N.E.	37	8 a.m. (1st).	N.N.E.	53	—
			3 a.m. (1st).	N.E.	44	16							
Kew	1 a.m. (1st).	N.	—	—	—	—	4 a.m. (1st).	N.	3	2 a.m. (1st).	N.	34	—
Yarmouth	3 a.m. (30th Nov.)	N.E.	11 a.m. (30th Nov.)	N.E	48	26	10 p.m. (1st).	N. by W.	43	10 p.m. (30th).	N.N.E.	51	—
Sandwick	4 a.m. (2nd).	N.W.byW.	—	—	—	—	9 a.m. (2nd).	N.N W.	5	5 a.m. (2nd).	N.W.byW.	35	—

Temperature rose slightly, and the weather remained dull. As the day advanced the depression appears to have become filled up; the barometer rose rapidly in the south-east, and the winds fell light. Lightning was seen at Cuxhaven in the evening.

Dec. 2. A very singular change had occurred. The depression over Germany had either become filled up or travelled far away to the eastward, so that the barometer had risen nearly 0·7 ins. in the east of France, and to a less extent over England. At the same time a new disturbance was advancing on the west coast of Scandinavia from the north-westward, so that the barometer fell 0·5 in. at Christiansund and 0.3 in. in Caithness. The highest reading lay off our south-west coasts. Moderate westerly breezes set in over Scotland, and south-westerly winds (with rain) in the west of Norway, while moderate east-north-easterly breezes prevailed over the Bay of Biscay, and northerly winds in the east of France. The sky was clear on our southern coasts, but during the day a little snow fell in the East of Great Britain. By 8 a.m. on the 3rd the centre of the new depression had reached the southern portion of the Baltic, so that while the wind had veered very generally to the northward throughout the north-west of Europe, pressure had recovered very quickly at our most northern stations and at Christiansund. Plate LXVIII. shows that the lowest reading at Aberdeen was recorded in the afternoon of the 2nd. The sky had become moderately clear throughout the United Kingdom, and temperature was very low everywhere, especially over eastern France and Belgium, where hard frost prevailed.

Dec. 4. The barometer having risen briskly over Norway, and to a less extent in the United Kingdom and France readings had become highest off our north-west coasts, while, judging by the fall of the barometer, and increase of wind to a gale in Denmark, the centre of the depression had apparently begun to travel slowly in a south-easterly or southerly direction (*see* Fig. 57, Plate LXVIII.). Temperature rose somewhat in France and Belgium, but again fell over our islands and the North Sea. The wind veered north-eastwards, and increased considerably on our east coast, accompanied by showers of snow and hail, and a rough sea. By the following morning, however, the disturbance had become filled up; the wind, after lulling, had backed to the N.W. in the north and north-east of the country, increasing to a strong breeze.

For several days after this the changes were unimportant, *see* Plate LXIX. Pressure remained highest at the more western or central parts of the country, and lowest to the eastward of the North Sea, while some local disturbances, which appeared in the south-east, caused temporary squalls of wind, so that at 6 a.m. on the 6th, the velocity of 43 miles an hour from E. was reached at Yarmouth for a short time, and in the evening of the 7th it reached even 55 miles an hour from E. by N. Temperature remained very low generally, and showers of snow, hail, or cold rain were felt occasionally in most parts of the country.

At 8 a.m. on the 12th the area of high pressure (exceeding 30·5 ins.) lay over the Bay of Biscay, while in the north the barometer had fallen rather quickly to 29·4 ins. at Christiansund. The wind had drawn into W. or W.S.W. over the whole of north-western Europe, and freshened so that during the day 40 miles an hour was exceeded, both at Sandwick and Alnwick Castle, and a moderate gale was felt at Sumburgh Head. Temperature rose considerably, and some rain fell in the northern parts of the country.

Dec. 13. The disturbance above noted was passing away over Scandinavia, and a brisk recovery of pressure was in progress at the northern stations during the morning, accompanied by a fall of temperature and westerly winds. By noon, however, a fresh fall had commenced in the north-west of Great Britain, which was not felt in other parts of our islands. This was accompanied by great variations in the direction of the wind at our northern stations, and followed by a good deal of rain in the same district. In fact, both on the 13th and 14th, the changes in wind and temperature at the Scotch Observatories were very sudden and peculiar—*see* Plate LXX.—while further southwards great regularity was observed.

Dec. 15. The highest readings (exceeding 30·4 ins.) still lay over the west of France, and the barometer was falling briskly on our western coasts. The wind backed to the southward in the latter and northern parts of the kingdom, freshening considerably, so that at Valencia 40 miles an hour was recorded by 10 a.m. Temperature did not change much, but some rain fell in the west and north-west. The disturbance soon passed off, but was soon succeeded by several others of more importance.

Dec. 16. At 8 a.m. readings varied from 30·4 ins. in the south-west to 29·8 ins. at Christiansund, and the barometer was rising generally. The winds were light from W. to N.W., temperature had fallen generally, and was low in France, while the sky was very cloudy in the south, clearer elsewhere. During the morning, however, a change set in. The barometer began to fall in Ireland, and the wind backed to the south-westward.

Dec. 17. Readings were now highest over central France, and owing to the continuous fall of the mercury in the west and north-west the gradient from Yarmouth to Thurso had increased to 0·09 in. per 50 miles. South-south-westerly breezes were general over the United Kingdom, and were increasing fast in the west and north-west, while variable easterly airs were felt in France. Temperature rose fast in Ireland and Scotland, but fell still faster in England and the north of France, though the warmer weather very soon extended to the English stations also. The sky became overcast generally, and during the day heavy rain set in over Ireland and Scotland. By the morning of the 18th a very deep depression had shown itself to the north-westward of our islands, and the gradients from the south-east of England to the north-west of Scotland had increased to 0·13 in. per 50 miles (Fig. 58, Plate LXXI.). Temperature had risen very rapidly, especially in England, and S.S.W. gales had set in over all but the southern parts of the country. These blew with great violence in the west and north, as will be seen by the following table:

Observatories, Dec. 16-18, 1871.	Velocity, 30-40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	Midngt. (16th).	S.	1 a.m. (16th).	S.	50	35	7 p.m. (18th).	W.S.W.	44	8 a.m. (18th).	S.	64	—
Armagh	11 p.m. (17th).	S.W. by S.	3 p.m. (18th).	S.W. by S.	44	4	9 p.m. (18th).	W. by S.	22	3 p.m. (18th).	S.W. by S.	47	—
Glasgow	3 a.m. (18th).	S. by W.	5 p.m. (18th).	S.W.	48	5	1 a.m. (19th).	W. by S.	22	9 p.m. (18th).	S.W.	53	—
Aberdeen	7 a.m. (18th).	S.W. by S.	—	—	—	—	10 a.m. (18th).	S.W. by S.	3	8 a.m. (18th).	S.W. by S.	40	
	5 p.m. (18th).	S.S.W.	Midt. (18th).	W. by N.	42	2	3 a.m. (19th).	W. by N.	10	Midnt. (18th).	W. by N.	45	
Sandwick	9 p.m. (18th).	W.S.W.	11 p.m. (18th).	N.W.	49	5	10 a.m. (19th).	W. by S.	13	1 a.m. (19th).	W.N.W.	55	Wind increased to over 30 miles per hour from S.W. or S.S.W. several times on the 17th.
Falmouth	1 a.m. (18th).	S.W. by S.	11 a.m. (18th).	S.S.W.	41	2	11 p.m. (18th).	W. by S.	22	11 a.m. (18th).	S.S.W.	41	—
Holyhead	6 a.m. (17th).	S.S.W.	10 p.m. (17th).	S.S.W.	48	22	10 p.m. (18th).	S.W.	40	5 p.m. (18th).	S.S.W.	54	—
Stonyhurst	6 p.m. (18th).	S.W. by W.	—	—	—	—	1 a.m. (19th).	W.S.W.	7	11 p.m. (18th).	W.S.W.	34	—
Alnwick Castle	Noon (17th).	S.W. by S.	—	—	—	—	3 p.m. (17th).	S.W. by S.	3	2 p.m. (17th).	S.W. by S.	41	For one hour only.
	5 a.m. (18th).	S.S.W.	8 a.m. (18th).	S.S.W.	48	14	2 a.m. (19th).	W. by S.	21	8 p.m. (18th).	S.W. by W.	60	—

The lowest pressure was attained at Valencia shortly before noon, but in Scotland, where the descent was accompanied by numerous oscillations, it occurred in the afternoon, and the subsequent recovery was very sudden (see Plate LXXI.) a short time before midnight. The rains from this storm were very heavy in some parts of Ireland, but not particularly so elsewhere.

Dec. 19. (Fig. 59.) The storm of the 18th was travelling rapidly away to the north-eastward, and at 8 a.m. a strong W.N.W. gale was blowing at Sumburgh Head, westerly gales in the south of Norway, and a whole gale from S.W. at Christiansund. In the United Kingdom generally the wind had fallen very light, but owing to some additional local disturbance, moderate gales were still felt on the Dutch coasts and in the north-east of France. The recovery of pressure during the night had been extremely rapid in Scotland, but was soon finished. Temperature had decreased rapidly, especially in the north, where the sky cleared, and bright aurora was seen at Thurso in the evening.

Dec. 20. Scarcely had the disturbance just described passed off than a new one advanced from the westward, its centre travelling right across the south of Ireland and centre of England. At 8 a.m. it lay close to Valencia (Fig. 60), while at Kew the recovery commenced at about 5 p.m. This gives a rate of progress of nearly 50 miles per hour, and it will be observed on referring to Plate LXXI. how deep the depression must have been, by the suddenness of the oscillations caused in the Valencia, Stonyhurst, Falmouth, and Kew barograms. Its influence in a northerly direction was far less extensive, so that at Aberdeen nothing more than a gradual dip is observed in the curve. We see that the centre of the storm passed to the southward of Stonyhurst, as the anemograph shows that the wind backed from S. through E. to N.W. The entire absence of easterly gales during so serious a disturbance is most remarkable. Very hard S.W. to N.W. gales were felt over all the southern parts of the kingdom, the velocity of 78 miles an hour being reported from St. Ann's Head in a gust at 11 a.m.; while at Holyhead a fresh gale from S.S.E. was followed, after an interval of several hours of light winds, by a hard N.N.W. gale, which set in with extreme suddenness at 2 p.m., when the centre had reached Wales.

Observatories, Dec. 20, 1871.	Velocity, 30–40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	3 a.m. (20th).	S. by E.	5 a.m. (20th).	S.W. by S.	50	5	2 p.m. (20th).	W.N.W.	11	6 a.m. (20th).	S.S.W.	60	—
Falmouth	6 a.m. (20th).	S.S.W.	7 a.m. (20th).	S.S.W.	54	12	9 p.m. (20th).	W.N.W.	15	2 p.m. (20th).	W. by N.	67	—
Holyhead	7 a.m. (20th).	S. by E.	—	—	—	—	10 a.m. (20th).	S.S.E.	3	8 a.m. (20th).	S.S.E.	41	for one hour only.
	2 p.m. (20th).	N.W.	3 p.m (20th).	N.N.W.	56	5	4 a.m. (21st).	W. by S.	14	3 p.m. (20th).	N.N.W.	67	—

Observatories. Dec. 20, 1871.	Velocity, 30-40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vol.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Kew	11 a.m. (20th).	S. by W.	—	—	—	—	10 p.m. (20th).	W. by N.	11	3 p.m. (20th).	S.S.W.	41	for one hour only.
Yarmouth	1 p.m. (20th).	S.	—	—	—	—	4 p.m. (20th).	S. by W.	3	2 p.m. (20th).	S. by W.	35	
	9 p.m. (20th).	N.W.	—	—	—	—	1 a.m. (21st).	W.N.W.	4	11 p.m. (20th).	N.W.byW	35	—

A glance at Plate LXXI. will show how excessive the velocity at Valencia was between 5 a.m. and 7 a.m., when compared with that at the other hours, the maximum force having been felt immediately prior to the time when the minimum pressure was reached. In the extreme north strong W.N.W. to W.S.W. winds, being part of the *previous* disturbance, were still felt. By 6 p.m. the centre had passed to the eastward of the Lincolnshire coast. Temperature changed suddenly, but not to a great extent; a great deal of rain fell with the south-westerly gales, but the sky subsequently became comparatively clear.

Dec. 21. It will be seen by Fig. 61 that by 8 a.m. on the 21st the centre of the storm just noticed had disappeared to the eastward of the North Sea; but that westerly gales were still felt from it on the Dutch and Danish coasts, while in our Islands the winds were light. In Ireland, however, the mercury was again falling fast; the wind had returned to the southward, and the weather was again becoming unsettled. The changes which occurred during the next 24 hours were singular. The new disturbance advanced in a south-easterly direction, so that at Aberdeen there is no trace of a fall in the barometer recorded, while at Valencia and Falmouth the concavities were deep, and the form of the depression well marked.

By 8 a.m. on the 22nd the centre lay over the Bay of Biscay, near the French coast, while an anticyclone had been formed over Scotland. The wind, which at first blew rather strongly from south on our south-west coasts (and at Valencia attained a velocity of 47 miles an hour from south at 10 a.m. on the 21st), backed to the eastward as the centre passed to the southward of our Islands, but was moderate in force, and rain fell somewhat copiously, followed by finer weather generally. Temperature did not change very much till the close of the 22nd, when it fell over England as the barometer rose.

Dec. 23. The barometer having risen briskly in most places, while it began to fall on our north-west coasts, an area of high pressure had been formed over England,

the Channel, and north of France. To the northward of this area moderate south-westerly breezes prevailed, while to the southward (over France) north-easterly winds were felt, calms and variable airs marking the region of highest pressure. Temperature rose fast in the north and west, and the change subsequently extended southwards. Some rain had fallen in the north, with snow at Ardrossan, while to the southward fogs prevailed very generally. During the next few days the fall of the barometer in the north-west continued, and extended south-eastward over the whole of western Europe, so that by 8 a.m. on the 25th readings had become highest over central and southern France, while they were lowest off our north-west coasts. Moderate to fresh S.W. winds were general, but some slight local disturbances which occurred caused temporary deflections of the main current in some places, notably off our south-west coasts on the 23rd and 25th. At other times, however, the wind (during the oscillations which took place in pressure at our western and northern stations) increased considerably, and on the 24th it blew a gale from the southward in some places, as will be seen by the following table:—

Observatories, Dec. 24 1871.	Velocity, 30-40 Miles per Hour.		Velocity, Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	8 a.m. (24th).	S. by E.	9 a.m. (24th).	S. by E.	43	3	4 p.m. (24th).	S. by W.	8	11 a.m. (24th).	S.	46	—
Glasgow	4 a.m. (24th).	S. by W.	—		—	—	7 a.m. (24th).	S.S.W.	3	4 a.m. (24th).	S. by W.	34	—
Holyhead	10 p.m. (23rd).	S.W. by S.	11 a.m. (24th).	S.	45	14	2 a.m. (25th).	S.W. by S.	28	2, 4, and 5 p.m. (24th).	S.	48	—
Alnwick Castle	11 p.m. (23rd).	W. by S.	—	—	—	-	2 a.m. (24th).	W.S.W.	3	Midnt. (23rd).	W. by S.	37	
	8 p.m. (24th).	S.W. by S.	—	—	—	—	Midnt. (24th).	S.S.W.	4	8 p.m. (24th).	S.W. by S.	35	—

Rain gradually extended over all but our southern stations, and the weather was mild generally, but on the 25th temperature fell considerably, except in the south.

Very little change took place in the *relative* distribution of pressure during the remainder of the month, although (as is usual while pressure is highest in the south-east and lowest in the north-west) several distinct depressions passed from the south-westward over or near our western and northern stations, causing considerable increase of S. and S.W. wind as they did so. The severest of these was registered on the 27th–28th, and as it extended eastwards gradients became very steep, and stiff gales were felt on all but our east and south-east coasts, as will be seen by the next table.

Observatories. Dec. 27-28 1871.	Velocity, 30–40 Miles per Hour.		Velocity Exceeding 40 Miles per Hour.				Velocity Fell below 30 Miles per Hour.		Total No. of Hours the Vel. above 30 Mls.	Maximum Velocity.			Remarks.
	Commenced.	Direction of Wind.	Commenced.	Direction of Wind.	Mean Vel.	Duration in Hours.	Ended.	Direction of Wind.		Hour.	Direction of Wind.	Velocity.	
Valencia	4 p.m. (27th).	S. by W.	5 p.m. (27th).	S.	47	7	Midnt. (27th).	S.W.	8	9 p.m. (27th).	S.	54	—
Armagh	1 a.m. (28th).	S. by E.	—	—	—	—	3 a.m. (28th).	S. by W.	2	2 a.m. (28th).	S.	34	—
Sandwick	8 a.m. (28th).	S.S.E.	—	—	—	—	?	?	?	10 a.m. (28th).	S. by E.	39	Clock of anemometer stopped from 11 a.m. to 3 p.m., so we have no record of the end of the gale.
Falmouth	Midngt. (27th).	S. by W.	7 a.m. (28th).	S. by W.	41	2	9 a.m. (28th).	S.W. by S.	9	7 a.m. (28th).	S. by W.	42	—
Holyhead	11 a.m. (27th).	S.W.	—	—	—	—	4 p.m. (27th).	S.W.	5	1 p.m. (27th).	S.W.	37	
	11 p.m. (27th).	S. by E.	1 a.m. (28th).	S. by E.	45	8	11 a.m. (28th).	S. by E.	12	3 a.m. (28th).	S. by E.	50	—
Stonyhurst	6 a.m. (28th).	S. by E.	—	—	—	—	2 p.m. (28th).	S.	8	11 a.m. & noon (28th).	S.	53	—

After the 28th pressure increased very generally till the end of the month, although the change was interrupted by a temporary fall, which took place in Ireland on the evening of the 29th, and in Great Britain the following day, and was accompanied by a considerable increase of southerly wind in the west. At Holyhead it reached 50 miles an hour at 5 a.m. on the 30th, and at Valencia 44 miles by 10 p.m. on the 29th.

By 8 a.m. on the 31st pressure had become highest over the Bay of Biscay, and lowest to the northward of our islands, but during the morning a very sudden fall of the mercury had set in at the Irish stations, accompanied by a backing of the wind to the southward, and the commencement of a strong gale at Valencia. As, however, the greater part of the country did not feel the gale till next day, it will be found described in the first part of the Report for 1872.

Remarks.

Wind.—

The following table shows the number of hours during which the wind at each observatory attained the velocity of 30 miles an hour or upwards, irrespective of the direction whence it blew. The values are given as usual for each month, and for the entire quarter.

Observatories.	Oct.	Nov.	Dec.	Total.	Observatories.	Oct.	Nov.	Dec.	Total.
Valencia - -	175	108	142	425	Holyhead - -	161	245	174	580
Armagh - -	5	37	22	64	Stonyhurst -	1	2	15	18
Glasgow - -	4	7	29	40	*Halifax (Moorside)	—	2	14	—
Aberdeen - -	45	41	19	105	Alnwick Castle -	22	13	74	109
Sandwick - -	40	128	77	245	Kew - - -	6	7	15	28
Falmouth - -	88	166	54	308	Yarmouth - -	51	129	51	231

These figures are nearly the same as those for the corresponding quarter of 1870. On our western coasts, however, they are decidedly lower than they were for the first quarter of the present year, while at Aberdeen and Yarmouth the converse is the case, but not at Alnwick Castle.

December was quieter than in either of the previous years.

Holyhead takes the lead with 580 hours of strong wind, and is followed by Valencia, then by Falmouth, while Stonyhurst and Kew experienced less than one twentieth of the amount of strong wind felt at Holyhead.

The next table shows similar values for the whole year; and at almost all places the sums are decidedly lower than those for the year 1869, but nearly equal to those for 1870.

Valencia - - - -	1,375	Holyhead - - -	1,764
Armagh - - - -	153	Stonyhurst - -	116
Glasgow - - - -	227	*Halifax (Moorside) - -	—
Aberdeen - - -	282	Alnwick Castle - - -	388
Sandwick - - -	1,037	Kew - - - -	71
Falmouth - - -	1,039	Yarmouth - - -	574

Here again, however, Holyhead shows by far the largest amount of wind, while Falmouth and Sandwick have values almost exactly alike. Kew was by far the least windy station during the year, and even for itself shows a singularly calm state of the atmosphere as in the year 1870 the figure had been 128, and in 1869, 202.

* Moorside did not begin working until the end of October.

October.

Pressure.—

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·819	− ·101	30·301	25th, 10 a.m.	28·913	29th, 2 a.m.	1·388
Armagh - -	29·857	+ ·047	30·496	10th, 2 a.m.	28·994	1st, 1 p.m.	1·502
Glasgow - -	29·847	+ ·067	30·432	10th, 8 a.m.	29·025	1st, 4 p.m.	1·407
Aberdeen - -	29·845	+ ·060	30·407	10th, 9 a.m.	29·084	1st, 5 p.m.	1·323
Falmouth - -	29·937	+ ·024	30·459	25th, 10 a.m.	29·268	1st, 3 p.m.	1·191
Stonyhurst -	29·911	+ ·095	30·476	12th, Midngt.	28·992	1st, 5 p.m.	1·484
Kew - - -	29·981	+ ·086	30·525	12th, Midngt.	29·121	1st, 6 p.m.	1·404

At all stations excepting Valencia (for which the average values are not so good as could be desired) pressure was very slightly above the average. The highest readings were recorded in the N. and N.W. on the 10th, over England on the 12th, and in the S.W., on the 25th. In nearly all places the minimum took place during the afternoon of the 1st. The range was least at Falmouth.

November.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	29·980	− ·035	30·321	30th, Midngt.	29·557	7th, 4 a.m.	0·764
Armagh - -	30·027	+ ·145	30·355	30th, Midngt.	29·423	8th, 6 a.m.	0·932
Glasgow - -	30·112	+ ·243	30·312	4th, 10 p.m.	29·342	8th, 6 a.m.	0·970
Aberdeen -	29·990	+ ·119	30·346	4th, 9 p.m.	29·233	10th, 5 a.m.	1·113
Falmouth -	29·985	+ ·001	30·395	19th, 11 a.m.	29·533	8th, 3 a.m.	0·862
Stonyhurst -	30·117	+ ·232	30·394	19th, 10 a.m.	29·399	8th, 11 a.m.	0·995
Kew - -	30·010	+ ·043	30·494	19th, 10 a.m.	29·482	8th, 8 a.m.	1·012

Pressure was again above the average, except at Valencia, the excess being greatest at Glasgow and Stonyhurst, but insignificant in the South. The maximum readings occurred in Scotland on the 4th, in England on the 19th, and in Ireland at midnight on the 30th, at which time, however, the mercury was still rising generally. The minima occurred on the 7th or 8th, except at Aberdeen, where the lowest point was reached on the morning of the 10th. The range was greater on the east coast than on the west, but was small generally, barely exceeding at inch at any station.

December.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.	D. H.	Inches.	D. H.	Inches.
Valencia - -	30·032	+ ·218	30·524	11th, 11 a.m.	29·036	28th, 4 a.m.	1·488
Armagh - -	29·992	+ ·108	30·500	1st, Midngt.	29·047	28th, 4 a.m.	1·453
Glasgow - -	29·931	+ ·115	30·444	1st, 10 p.m.	29·084	28th, 1 p.m.	1·360
Aberdeen -	29·873	+ ·045	30·396	1st, 8 p.m.	29·053	18th, 10 p.m.	1·343
Falmouth - -	30·143	+ ·079	30·603	13th, 11 a.m.	29·180	28th, 1 p.m.	1·423
Stonyhurst - -	30·034	+ ·182	30·524	8th, 10 a.m.	29·174	28th, 3 p.m.	1·350
Kew - - -	30·125	+ ·093	30·544	8th, 10 a.m.	29·314	20th, 5 p.m.	1·230

The barometer was again above its average height, to the extent of 0·2 in. at Valencia. The maximum readings for the month occurred on the 1st in the north of our islands, on the 8th over the greater part of England, and about the middle of the month in the south-west; while the minimum took place over all but the east coast on the 28th. The range was considerably larger than in November, and was greatest in Ireland. It was much less than that noticed in December 1870.

For the Year.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	Inches.	Inches.	Inches.		Inches.		Inches.
Valencia - -	29·909	− ·006	30·588	March 29th, 11 a.m.	?28·198*	Jan. 15th, 10 p.m.	?2·390
Armagh - -	29·913	+ ·048	30·688	March 28th Midnt.	28·176	Jan. 16th, 4 a.m.	2·512
Glasgow - -	29·882	+ ·053	30·611	March 28th, 10 p.m.	28·313	Jan. 16th, 8 a.m.	2·298
Aberdeen - -	29·876	+ ·034	30·578	March 28th, 9 p.m.	28·411	Jan. 16th, 2 p.m.	2·167
Falmouth - -	29·978	− ·021	30·603	Dec. 13th, 11 a.m.	28·769	Jan. 16th, 1 a.m.	1·834
Stonyhurst - -	29·933	+ ·056	30·574	March 28th, 9 p.m.	28·592	Jan. 16th, 6 a.m.	1·982
Kew - - -	29·978	+ ·020	30·544	Dec. 8th, 10 a.m.	28·878	Jan. 16th, 7 a.m.	1·666

* This was the lowest reading recorded, but the light was interrupted during the next two hours.

Taking the whole year, we find that the mean barometrical reading was slightly below its average value in the south-west of our islands, but rather above it elsewhere, the excess being greatest in the north-west. The highest reading in the year was registered at the end of March, except in the south of England, where the highest values

attained were recorded in December. The highest readings of all occurred in the north-west of the kingdom. The lowest readings were registered in all places on the 16th January, when the mercury fell as low as 28·176 ins. (at the sea level) at Armagh. This very low level, when compared with the rather high maximum recorded there in March, gives the large range of 2½ inches for the year, and, indeed, for little more than two months.

It is possible that a similar range may have occurred at Valencia, but the unfortunate interruption of light on January 15 at 10 p.m. renders this uncertain.

Temperature.— October.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	53·5	+0·6	62·2	12th, 2 p.m.	38·7	8th, 7 a.m.	23·5
Armagh - -	49·4	+0·2	61·9	14th, 1 p.m.	31·0	10th, 7 a.m.	30·9
Glasgow -	48·2	+0·7	60·0	18th, noon	28·1	10th, 6 a.m.	31·9
Aberdeen - -	48·5	+2·2	58·1	15th, 3 p.m.	33·8	10th, 7 a.m.	24·3
Falmouth - -	54·0	—	61·9	15th, 1 p.m.	44·9	8th, 3 a.m. 25th, 8 a.m.	17·0
Stonyhurst - -	48·7	+0·5	63·9	18th, 1 p.m.	32·8	9th, 6 a.m.	31·1
Kew - - -	49·0	−0·9	65·4	18th, 2 p.m.	30·6	13th, 4 a.m.	34·8

Temperature differed little from its average value. At Kew, Stonyhurst, and Glasgow the greatest heat was registered on the 18th, while at other stations it took place a few days earlier. The minimum (which was 4° below the freezing point at Glasgow) was felt on the 10th in the north of our islands. The very low temperature recorded at Glasgow made the range there almost as large as that experienced at Kew, and larger than that at the other observatories.

November.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°		°		°
Valencia - -	46·7	−0·1	58·1	2nd, 2 p.m.	33·8	11th, Midngt.	24·3
Armagh - -	41·0	−1·4	51·6	14th, 2 p.m.	30·0	13th, 7 a.m.	21·6
Glasgow - -	39·3	−1·0	50·1	14th, 2 p.m. 15th, noon	23·3	18th, 9 a.m.	26·8
Aberdeen - -	39·1	−0·8	49·3	1st, noon	28·8	24th, 6 a.m.	20·5
Falmouth - -	45·2	—	54·7	1st, 1 p.m.	33·0	18th, 5 a.m.	21·7
Stonyhurst -	38·4	−2·7	49·6	15th, 1 a.m.	24·9	18th, 7 a.m.	24·7
Kew - - -	37·7	−5·5	53·0	15th, noon	20·2	19th, 8 a.m.	32·8

The weather was decidedly cold in the south of England, and rather so elsewhere. The highest temperatures were recorded on the 15th at Stonyhurst and Kew, and on the 14th at our north-western stations, while the minimum was experienced on the 18th or 19th over nearly the whole of Great Britain. That recorded at Kew was 12° below the freezing point. The range of temperature was greatest at Kew, but was not very large elsewhere.

December.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°	D. H.	°	D. H.	°
Valencia - -	45·1	−1·2	54·5	18th, 1 p.m.	30·4	6th, 7 a.m.	24·1
Armagh - -	40·0	−1·4	54·8	18th, 2 p.m.	24·7	5th, 5 a.m.	30·1
Glasgow - -	39·3	−0·8	52·9	18th, 4 p.m.	25·0	5th, 3 a.m.	27·9
Aberdeen - -	38·4	−0·1	54·8	19th, 6 a.m.	26·7	4th, 8 a.m.	28·1
Falmouth - -	43·2	—	51·9	30th, 1 p.m.	29·0	8th, 7 a.m.	22·9
Stonyhurst - -	39·2	−0·3	52·6	18th, 6 p.m.	20·2	8th, 6 a.m.	32·4
Kew - - -	38·7	−0·7	49·5	19th, 1 p.m.	21·8	8th, 8 a.m.	27·7

In December the temperature was again somewhat low, especially in Ireland. The warmest period was on the 18th or 19th in all places excepting Falmouth, while the greatest cold was felt at Aberdeen on the 4th, at the north-western observatories on the 5th, at Valencia on the 6th, and in England on the 8th. The range in this month was greatest at Stonyhurst and was very uniform generally.

For the Year.

Observatories.	Mean.	Difference from Average.	Maximum.	Day and Hour.	Minimum.	Day and Hour.	Range.
	°	°	°		°		°
Valencia - -	51·8	+0·7	72·9	May 29th, 2 p.m.	30·4	Dec. 6th, 7 a.m.	42·5
Armagh - -	48·3	−0·6	74·4	Aug. 9th, 2 p.m.	24·7	Dec. 5th, 5 a.m.	49·7
Glasgow - -	47·0	−0·1	74·5	Aug. 10th, 3pm.	23·0	March 15th, 6 a.m.	51·5
Aberdeer - -	46·1	−0·6	73·5	Aug. 6th, 5 p.m.	19·5	Jan. 3rd, 8 p.m.	54·0
Falmouth - -	51·2	—	79·0	Aug. 13th, 1 p.m.	28·2	Jan. 28th, 7 a.m.	50·8
Stonyhurst - -	47·3	+0·4	80·3	Aug. 10th, 3 p.m.	16·3	Jan. 4th, 10 a.m.	64·0
Kew - - -	48·9	0·0	85·4	Aug. 12th, 3 p.m.	19·2	Jan. 1st, 7 a.m.	66·2

The temperature of the year, taken as a whole, was much about the average, rather lower than otherwise in the north. The greatest heat was experienced in August, except at Valencia, where it was felt in May; while the lowest temperatures in the year were recorded in January at most British observatories, and in December over Ireland. The range of temperature was 24° greater at Kew than at Valencia, but was not large anywhere, being much less than in either of the two preceding years.

The next Table gives the difference between the five-day mean temperatures at Kew and the Greenwich averages, as in other parts of the Report.

Dates.	Variation.	Dates.	Variation.	Dates.	Variation.
	°		°		°
Sept. 28–Oct. 2	−2·3	Oct. 28–Nov. 1	+ 2·7	Nov. 27–Dec. 1	−5·3
Oct. 3–7	−2·1	Nov. 2–6	− 3·6	Dec. 2–6	−9·1
„ 8–12	−7·8	„ 7–11	− 6·3	„ 7–11	−9·0
„ 13–17	+0·4	„ 12–16	− 5·1	„ 12–16	+0·8
„ 18–22	+3·2	„ 17–21	−10·2	„ 17–21	+3·8
Oct. 23–27	−1·0	Nov. 22–26	− 3·8	„ 22–26	+5·1
				Dec. 27–31	+5·3

Thus we had cold weather during the earlier part of October, then a rather warmer period lasting with little interruption till early in November. After this a cold period commenced and continued for more than a month, the values being very much below the average between November 17 and 21, and between December 2 and 11. After this, however, the weather became warmer, and remained so till the close of the year.

RAIN.

The next table gives the principal details of the rainfall for each month in the quarter. It would appear from it that October was, on the whole, drier than usual, although to this there are some exceptions. At the more northern stations November was decidedly a wet month, but dry elsewhere, while in December there was a great deficiency of rain generally.

RAINFALL, 1871.

Positions of Gauges.			October.							November.							December.							Remarks.
Names of Stations.	Height of Gauge. Above Ground.	Height of Gauge. Above Mean Sea Level.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	No. of Rainy Days.	Total Fall in the Month.	Difference from the Average.	Greatest Fall in 24 Hours.	Date.	No. of Falls exceeding 1 inch in 24 Hours.	Dates.	
Observatories.																								
Valencia	ft. in. 2 0	ft. 11	25	7·20	+0·79	0·93	20th	0	—	14	4·33	−1·74	1·15	13th	1	13th	21	5·45	−1·25	0·84	19th	0	—	Self-registering gauges.
Armagh	2 2	204	17	2·70	−0·54	0·73	28th	0	—	8	1·42	−1·09	0·43	20th	0	—	17	1·94	−0·84	0·38	19th	0	—	
Glasgow	1 10	180	24	3·21	−1·06	0·93	23rd	0	—	16	3·09	−0·30	0·87	21st	0	—	23	3·90	−0·21	0·87	13th	0	—	
Aberdeen	2 0	48	15	3·04	+0·45	1·46	1st	1	1st.	21	2·06	+0·05	0·38	10th	0	—	12	1·39	−1·75	0·33	28th	0	—	
Falmouth	1 10	167	22	6·22	+1·95	1·39	28th	1	28th.	18	4·78	−0·42	2·34	7th	1	7th	21	4·28	+0·09	0·76	19th	0	—	
Stonyhurst	1 9	377	24	6·37	+1·07	1·48	6th	2	6th & 19th	17	2·05	−1·87	0·52	10th	0	—	25	3·81	−0·77	0·85	13th	0	—	
Kew	1 10	20	12	1·07	−1·06	0·23	21st	0	—	9	0·55	−1·18	0·20	14th	0	—	13	1·14	−0·57	0·43	25th	0	—	
Telegraphic Reporting Stations.																								
Sumburgh Head (Shetland).	1 9	170	19	4·57	+1·78	0·79	6th	0	—	21	4·15	+1·60	0·93	18th	0	—	24	5·50	+1·94	0·65	31st	0	—	
Thurso	1 9	25	20	2·32	−0·75	0·44	29th	0	—	23	2·53	−1·27	0·40	9th	0	—	23	2·08	−1·44	0·32	20th	0	—	
Wick	1 9	100	20	2·40	−0·52	0·65	29th	0	—	21	3·09	+0·33	0·61	9th	0	—	15	1·79	−0·92	0·33	17th	0	—	
Nairn	1 2	44	17	1·80	−0·45	0·33	2nd & 12th	0	—	20	2·82	+1·21	0·39	26th	0	—	17	0·80	−1·86	0·12	24th	0	—	
Leith	1 2	21	17	1·65	+0·38	0·20	14th & 29th	0	—	18	3·22	+2·33	0·68	21st.	0	—	8	1·42	−0·18	0·54	13th	0	—	
North Shields	10 0	107	17	1·81	−0·87	0·41	28th	0	—	19	1·62	−0·60	0·25	10th	0	—	17	1·39	−1·13	0·26	22nd	0	—	
Scarborough	1 0	130	12	1·84	−1·47	1·12	6th	1	6th	15	3·37	+1·10	0·72	17th	0	—	14	1·81	−0·93	0·38	20th	0	—	
Yarmouth	5 2	24	7	2·20	−0·77	0·71	3rd	0	—	15	4·19	+1·82	0·74	14th	0	—	10	2·28	−2·33	0·46	13th	0	—	
Ardrossan	1 2	13	19	3·39	−0·55	0·53	28th	0	—	16	4·45	+1·03	1·34	21st	1	21st	22	3·73	−0·81	0·56	17th	0	—	
Greencastle	7 6	70	22	3·02	−1·94	0·42	28th	0	—	18	3·31	−1·12	0·56	9th	0	—	21	2·85	−1·26	0·38	13th	0	—	
Holyhead	1 2	44	17	5·10	+0·97	0·78	6th	0	—	11	2·06	−0·46	0·56	14th	0	—	14	3·99	−0·33	0·58	28th	0	—	
Liverpool (Bidston Observatory).	0 6	180	18	5·19	+0·99	1·13	6th	1	6th	11	1·84	−0·75	1·09	14th	1	14th	17	1·70	−1·51	0·21	12th & 28th	0	—	
Roche's Point	1 9	23	24	5·88	+2·32	0·78	28th	0	—	13	4·51	+0·88	1·09	14th	1	14th	14	4·42	−2·07	0·65	24th	0	—	
Pembroke	1 2	125	23	6·07	+0·06	1·14	28th	1	28th	15	1·55	−2·86	0·49	14th	0	—	21	3·11	−1·87	0·51	24th	0	—	
Scilly	1 9	100	27	4·06	—	0·56	28th	0	—	14	3·36	—	0·64	24th	0	—	16	2·69	—	0·59	27th	0	—	
Plymouth	27 0	95	19	3·62	+0·11	0·92	29th	0	—	10	1·01	−2·00	0·38	24th	0	—	13	3·28	−1·30	0·79	28th	0	—	
Portsmouth	1 0	16	14	1·69	−0·82	0·32	1st	0	—	10	0·96	−0·39	0·51	23rd	0	—	12	1·39	−1·88	0·50	20th	0	—	
Dover	23 0	46	8	1·14	−1·17	0·45	6th	0	—	11	2·73	−0·63	1·80	30th	1	30th	16	3·09	+0·01	0·70	4th	0	—	
London	1 3	—	13	0·93	−1·39	0·20	1st & 21st	0	—	9	0·43	−1·02	0·16	14th	0	—	13	1·08	−1·70	0·43	25th	0	—	
Extra Stations. (Information supplied by Societies, private individuals, and others.)																								
Barnstaple	0 8	31	27	5·64	+0·44	0·83	26th	0	—	11	1·79	−1·32	0·43	24th	0	—	21	3·15	−0·62	0·61	31st	0	—	
Dublin	3 0	57	16	2·92	−0·23	0·85	28th	0	—	14	1·26	−1·49	0·20	24th	0	—	15	0·80	−1·60	0·17	24th	0	—	
Florence Court (co. Fermanagh).	11 4	300	23	3·57	0·53	0·50	28th	0	—	12	4·24	+0·42	2·06	20th	1	20th	19	3·90	−0·90	0·57	27th & 31st	0	—	
Galway	8 2	30	19	2·20	−2·80	0·47	25th	0	—	13	1·38	−2·79	0·42	13th	0	—	25	2·44	−2·56	0·42	30th	0	—	
Guernsey	12 0	204	14	5·08	+0·67	0·80	7th	0	—	13	1·51	−2·33	0·47	23rd	0	—	17	2·49	−1·38	0·30	20th	0	—	
Helston	5 0	115	20	5·38	+1·30	1·16	28th	1	28th	17	3·41	−1·06	0·60	15th	0	—	14	3·16	−0·55	0·66	21st	0	—	
Jersey	36 11	39	*13	*3·46	−0·21	—	—	—	—	15	1·40	−1·64	0·31	10th	0	—	16	1·95	−1·23	0·43	6th	0	—	
Rugby	3 0	383	13	1·98	+0·63	0·34	6th	0	—	14	0·92	−0·56	0·44	14th	0	—	20	1·28	−0·26	0·29	21st & 27th	0	—	
Sandwick (Orkney Islands).	2 0	78	15	3·98	−0·53	1·29	26th	2	6th & 26th	24	3·84	−0·38	0·67	9th.	0	—	28	3·98	−0·22	0·50	19th	0	—	

* Rain gauge broken in October.

Taking the whole year into consideration, we find, by the following Table, that at Pembroke and Galway the deficiency was $\frac{1}{4}$ and $\frac{1}{5}$ respectively of the total fall, and in most cases, the fall was less than the average quantity, but to this rule there are certain marked exceptions, notably in the Channel Islands and the east of Scotland.

RAINFALL for the whole Year, 1871.

Names of Stations.	No. of Rainy Days.	Total Fall.	Difference from the Average.
OBSERVATORIES.			
Valencia	217	55·85	− 0·77
Armagh	190	27·86	− 1·82
Glasgow	210	39·76	− 3·07
Aberdeen*	—	—	—
Falmouth*	—	—	—
Stonyhurst	242	40·27	− 5·75
Kew	154	20·86	− 2·04
TELEGRAPHIC REPORTING STATIONS.			
Thurso	224	29·93	− 0·48
Wick	178	26·54	+ 2·42
Nairn	174	23·38	− 0·55
Leith	168	23·94	+ 4·10
Shields	174	23·10	− 2·16
Scarborough	136	25·24	− 0·58
Yarmouth	113	31·30	+ 1·49
Ardrossan	202	39·49	− 0·63
Greencastle	190	36·54	− 2·80
Holyhead	123	30·57	− 0·86
Liverpool (Bidston Observatory).	159	25·49	− 1·13
TELEGRAPHIC REPORTING STATIONS—*continued.*			
Roche's Point	194	48·92	+ 2·02
Pembroke	190	35·21	−12·03
Scilly	192	35·44	?
Plymouth	168	36·65	− 2·30
Portsmouth	142	24·80	− 1·98
Dover	157	28·09	− 2·98
London	166	23·61	− 0·89
EXTRA STATIONS. (Information supplied by Societies, Private Individuals, and others.)			
Barnstaple	189	37·08	− 0·83
Dublin	191	25·39	− 3·63
Florence Court (co. Fermanagh).	215	46·31	+ 4·39
Galway	231	39·63	−10·41
Guernsey	168	36·31	− 0·26
Helston	175	41·60	+ 4·03
Jersey	177	36·01	+ 4·95
Rugby†	—	—	—
Sandwick (Orkney Islands).	218	31·97	− 6·70

* The self-registering gauges did not commence working till April, so that we cannot publish the amount for the entire year.
† At Rugby also no records were received for the first three months.

APPENDIX.

APPENDIX I.

TABLE I.—MEAN MONTHLY RESULTS from the continuous RECORDS at the SEVEN BRITISH OBSERVATORIES, for the Year 1871.

VALENCIA.

MONTHS.	THERMOMETER.					BAROMETER.					PRESSURE.	
	Means.	Extremes. Maximum.		Extremes. Minimum.		Means.	Extremes. Maximum.		Extremes. Minimum.		Vap.	Dry Air.
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°	D. H.	°	D. H.	°	In.	D. H.	In.	D. H.	In.	In.	In.
January -	43·1	6 3	51·3	24 20	31·4	29·740	23 22	30·268	15 10	[a]**28·174**	0·231	29·509
February -	47·9	6 23	52·9	1 14	37·0	29·874	21 11	30·505	2 17	29·018	·289	29·585
March -	47·7	24 3	64·2	14 17	34·3	29·919	28 23	**30·562**	5 21	28·922	·259	29·660
April -	50·7	9 3	58·7	3 16	40·0	29·708	4 0	30·185	18 6	28·893	·299	29·409
May -	55·1	29 2	**72·9**	9 17	42·3	30·084	20 0	30·390	23 20	29·594	·322	29·762
June -	57·5	1 3	69·4	23 16	46·3	29·929	25 3	30·405	29 0	29·337	·371	29·558
July -	58·4	16 0	66·7	9 17	50·3	29·782	17 11	30·194	25 18	29·450	·404	29·378
August -	60·5	6 4	71·2	21 14	51·0	29·963	27 0	30·485	23 21	29·321	·434	29·529
September	55·7	16 3	70·5	23 18	39·0	29·852	13 10	30·316	26 18	28·931	·342	29·510
October -	53·5	12 2	62·2	7 19	38·7	29·793	24 22	30·374	28 14	28·888	·335	29·358
November	46·7	2 2	58·1	11 12	33·8	29·955	30 23	30·402	6 16	29·532	·252	29·703
December	45·1	18 1	54·5	5 19	**30·4**	30·006	10 23	30·497	27 16	29·011	0·236	29·770
Annual -	51·8	..	..	..	..	29·884	..	..	..	..	0·315	29·561

[a] Is the lowest reading *recorded*, but, the light having been cut off during the two subsequent hours, it is doubtful whether the above is the true minimum.

ARMAGH.

	°	D. H.	°	D. H.	°	In.	D. H.	In.	D. H.	In.	In.	In.
January -	36·3	6 2	49·2	24 12	28·2	29·514	24 11	30·115	15 16	**27·956**	0·191	29·323
February -	44·7	19 2	54·0	1 19	32·9	29·649	21 11	30·187	5 2	28·967	·253	29·396
March -	44·3	24·3	62·6	14 17	25·6	29·709	28 12	**30·406**	6 4	28·917	·232	29·477
April -	46·9	13 1	59·7	8 17	30·1	29·534	6 21	29·952	18 19 / 19 2	28·764	·259	29·275
May -	52·2	7 5	69·3	16 16	32·0	29·891	28 10	30·180	2 18	29·467	·292	29·599
June -	55·5	15 2	71·0	9 17	40·7	29·737	2 11	30·184	29 9	29·187	·339	29·398
July -	57·4	14 2	70·2	10 17	47·7	29·523	17 11	29·892	25 12	29·030	·389	29·134
August -	59·2	9 2	**74·4**	14 17 / 21 17	45·7	29·760	27 9	30·265	24 0	[b]28·922	·413	29·347
September	52·1	3 2	67·1	28 18	35·1	29·707	13 20	30·213	30 23	28·793	·324	29·383
October -	49·4	14 1	61·9	9 19	31·0	29·627	9 14	30·158	1 1	28·774	·302	29·325
November	41·0	14 2	51·6	12 19	30·0	29·793	30 23	30·184	7 18	29·194	·218	29·575
December	40·0	18 2	54·8	4 17	**24·7**	29·758	1 12	30·262	27 16	28·821	0·220	29·538
Annual -	48·3	..	..	..	..	29·684	..	..	..	..	0·286	29·398

[b] Doubtful, the curve for the subsequent hours being too indistinct.

The barometrical readings are reduced to 32°, but not to sea level. See headings to Table II.

Table I.—Mean Monthly Results, &c.—*continued.*

GLASGOW.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes. Maximum. Day.	Maximum. Ther.	Minimum. Day.	Minimum. Ther.	Means.	Extremes. Maximum. Day.	Maximum. Bar.	Minimum. Day.	Minimum. Bar.	Vap.	Dry Air.
	°	D. H.	°	D. H.	°	In.	D. H.	In.	D. H.	In.	In.	In.
January -	34·2	6 3	46·5	25 10	23·1	29·524	24 8	30·165	15 20	**28·117**	0·173	29·351
February -	41·8	19 2	51·9	1 0	27·9	29·638	28 21	30·194	5 6	28·941	·232	29·406
March -	43·0	25 2	61·0	14 18	**23·0**	29·692	28 10	**30·397**	7 14	28·894	·221	29·471
April -	43·1	13 2	58·1	7 17	31·3	29·561	6 20	30·008	19 7	28·864	·224	29·337
May -	51·9	29 4	74·4	16 16	29·0	29·863	6 20	30·191	3 12	29·219	·273	29·590
June -	54·7	14 4	68·9	2 16	40·9	29·750	2 13	30·151	17 16	29·222	·307	29·443
July -	57·3	14 2	70·3	28 17	46·1	29·501	16 2	29·876	25 16	28·963	·364	29·137
August -	58·7	10 3	**74·5**	19 15	43·9	29·723	27 20	30·232	24 4	28·821	·389	29·334
September	52·0	10 2	66·4	29 19	34·9	29·716	13 21	30·234	30 23	28·861	·307	29·409
October -	48·2	18 0	60·0	9 18	28·1	29·643	9 20	30·219	1 4	28·827	·284	29·359
November	39·3	14 2 15 0	50·1	17 21	23·3	29·804	30 22	30·150	7 18	29·138	·203	29·601
December	39·3	18 4	52·9	4 15	25·0	29·723	1 10	30·233	28 1	28·885	0·207	29·516
Annual -	47·0	..	..	..	..	29·678	..	..	..	..	0·265	29·413

ABERDEEN.

	°	D. H.	°	D. H.	°	In.	D. H.	In.	D. H.	In.	In.	In.
January -	34·9	13 21	45·3	3 8	**19·5**	29·613	29 22	30·305	16 2	**28·317**	0·172	29·441
February -	41·2	25 1	56·3	28 9	32·0	29·707	28 14	30·356	19 19	29·104	·213	29·494
March	42·8	25 0	62·9	14 16	25·6	29·808	28 9	**30·473**	7 17	28·920	·214	29·594
April -	41·0	12 3	59·3	5 17	27·3	29·698	5 23	30·133	15 11	29·039	·207	29·491
May -	48·2	22 2	66·4	16 14	32·6	29·969	28 9	30·320	3 13	29·281	·254	29·715
June -	50·6	17 1	66·0	24 15	39·3	29·887	25 16	30·231	17 14	29·282	·292	29·595
July -	57·3	16 23	72·0	3 14	46·8	29·590	16 9	29·938	25 17	29·022	·361	29·229
August -	58·9	6 5	**73·5**	21 17	44·7	29·811	27 21	30·303	24 9	28·766	·381	29·430
September	51·7	3 0	66·3	29 19	36·3	29·840	16 11	30·373	30 23	29·075	·309	29·531
October -	48·5	15 3	58·1	9 19	33·8	29·747	9 21	30·307	1 5	28·989	·283	29·464
November	39·1	1 0	49·3	23 18	28·8	29·890	4 9 30 23	30·245	9 17	29·136	·198	29·692
December	38·4	18 18	54·8	3 20	26·7	29·774	1 8	30·295	18 10	28·959	0·195	29·579
Annual -	46·1	..	..	..	..	29·778	..	..	..	..	0·257	29·521

The barometrical readings are reduced to 32°, but not to sea level. See headings to Table II.

Table I.—Mean Monthly Results, &c.—*continued.*

FALMOUTH.

Months.	Thermometer.						Barometer.						Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°	D. H.	°	D. H.	°	In.	D. H.	In.	D. H.	In.	In.	In.
January -	39·9	6 1 / 10 4	49·5	27 19	**28·2**	29·591	12 11	30·096	15 13	**28·543**	0·202	29·389
February -	46·7	18 1	54·5	10 19	35·4	29·818	21 23	30·316	10 1	29·194	·280	29·538
March -	46·3	27 2	58·7	29 15	36·0	29·812	28 21	30·285	5 22	29·152	·254	29·558
April -	49·7	28 23	59·0	4 17	39·7	29·617	4 9	30·004	18 19	28·918	·304	29·313
May -	53·0	29 5	68·5	11 14	41·6	29·876	20 0	30·163	24 16	29·559	·302	29·574
June -	56·5	1 1	68·7	4 16	43·4	29·742	25 11	30·127	18 4	29·321	·360	29·382
July -	59·4	16 0	71·0	30 7	51·6	29·680	5 13	30·017	2 6	29·233	·413	29·267
August -	63·1	13 1	**79·0**	26 18	52·5	29·812	26 22	30·317	17 21	28·901	·465	29·347
September	57·4	2 1	68·5	23 10	45·3	29·627	13 12	30·003	27 5	28·581	·381	29·246
October -	54·0	15 1	61·9	7 15 / 24 20	44·9	29·706	24 22	30·224	1 3	29·043	·344	29·362
November	45·2	1 1	54·7	17 17	33·0	29·749	18 23	30·156	7 15	29·303	·233	29·516
December	43·2	30 1	51·9	7 19	29·0	29·905	12 23	**30·363**	28 1	28·952	0·225	29·680
Annual-	51·2	..	..	..	..	29·745	..	..	..	..	0·314	29·431

STONYHURST.

	°	D. H.	°	D. H.	°	In.	D. H.	In.	D. H.	In.	In.	In.
January -	32·4	6 7	47·5	3 22	**16·3**	29·390	26 23	29·921	15 18	**28·210**	0·157	29·233
February -	41·5	19 2	50·9	11 7	27·3	29·538	28 22	30·082	9 22	28·756	·228	29·310
March -	44·3	25 1	64·7	14 19	*25·4	29·584	28 9	**30·157**	15 15	28·889	·225	29·359
April -	45·6	29 3	59·6	7 17	29·8	29·383	6 20	29·837	19 3	28·630	·241	29·142
May -	51·3	24 3	74·1	16 16	31·6	29·695	6 20	30·003	3 15	29·324	·274	29·421
June -	54·2	12 4 / 14 3	67·6	4 16	37·9	29·559	25 22	29·928	17 15	29·084	·305	29·254
July -	57·5	14 23	68·4	31 15	46·4	29·393	16 0	29·762	25 18	28·825	·379	29·014
August -	61·3	10 3	**80·3**	21 17	42·1	29·601	27 8	30·090	24 4	28·967	·421	29·180
September	52·6	1 2 / 11 2	69·2	24 18	36·3	29·515	13 21	30·021	27 9	28·647	·316	29·199
October -	48·7	18 1	63·9	8 18	32·8	29·513	12 12	30·066	1 5	28·606	·290	29·223
November	38·4	14 13	49·6	17 19	24·9	29·609	18 22	29·985	7 23	29·001	·197	29·412
December	39·2	18 6	52·6	7 18	20·2	29·627	7 22	30·100	28 3	28·782	0·210	29·417
Annual-	47·3	..	..	..	..	29·534	..	..	..	..	0·270	29·264

The barometrical readings are reduced to 32°, but not to sea level. See headings to Table II.

(*) Doubtful, the curve being indistinct for the two preceding hours.

Table I.—Mean Monthly Results, &c.—*continued.*

KEW.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°	D. H.	°	D. H.	°	In.	D. H.	In.	D. H.	In.	In.	In.
January -	33·9	6 16	44·6	1 7	**19·2**	29·800	12 14	30·245	15 19	**28·840**	0·173	29·627
February -	43·0	27 2	56·0	10 20	25·6	30·007	28 22	30·480	10 3	29·199	·236	29·771
March -	45·1	24 2	66·6	2 18	30·8	30·016	1 0	30·454	15 19	29·214	·232	29·784
April -	48·6	12 2	62·6	10 16	30·4	29·795	6 11	30·203	19 1	29·143	·269	29·526
May -	52·1	24 4	[a]77·7	11 18	34·0	30·054	6 22	30·355	25 1	29·764	·277	29·777
June -	55·2	16 2	73·1	3 14	39·2	29·909	25 23	30·254	17 7	29·476	·338	29·571
July -	61·5	17 5	79·5	30 16	47·5	29·834	5 21	30·209	24 15	29·327	·403	29·431
August -	64·3	12 3	**85·4**	27 18	46·4	30·001	27 13	30·459	17 22	29·427	·430	29·571
September	57·2	1 3	78·6	22 18	37·4	29·749	13 22	30·269	27 14	28·911	·360	29·380
October -	49·0	18 2	65·4	12 16	30·6	29·943	12 12	30·487	1 6	29·084	·298	29·645
November	37·7	15 0	53·0	18 20	20·2	29·971	18 22	30·455	7 20	29·443	·192	29·779
December -	38·7	19 1	49·5	7 20	21·8	30·086	7 22	**30·505**	20 5	29·276	0·225	29·861
Annual -	48·9	..	..	..	..	29·930	..	..	..	..	0·286	29·644

The barometrical readings are reduced to 32°, but not to sea level. See headings to Table II.

[a] The corrected reading of Phillips' maximum thermometer, the curve being very faint.

TABLE II.—PART 1.

FIVE-DAY MEANS of the DRY and WET-BULB THERMOMETERS and BAROMETER, from the continuous Records at the Seven BRITISH OBSERVATORIES, January to June 1871.

Five-Day Periods.	THERMOMETERS.														BAROMETER.							Five-Day Periods.
	Valencia. 12 ft.		Armagh. 4 ft.		Glasgow. 7 ft.		Aberdeen. 41 ft.		Falmouth. 11 ft.		Stonyhurst. 7 ft.		Kew. 10 ft.		Valencia. 23 ft.	Armagh. 207 ft.	Glasgow. 184 ft.	Aberdeen. 88 ft.	Falmouth. 211 ft.	Stonyhurst. 361 ft.	Kew. 34 ft.	
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.								
Jan. 1–5	46·4	44·2	38·5	37·7	35·8	34·7	33·9	32·7	41·7	39·6	29·6	28·4	29·9	28·5	29·924	29·622	29·601	29·670	29·783	29·543	30·017	Jan. 1–5
„ 6–10	45·1	42·6	35·7	34·7	34·9	33·6	34·3	(32·9)	42·8	40·6	33·6	32·8	35·5	34·4	29·757	29·380	29·290	29·308	29·505	29·173	29·635	„ 6–10
„ 11–15	44·2	42·3	39·1	37·8	38·6	37·1	38·2	36·5	42·3	39·8	35·5	33·9	35·1	(34·5)	29·607	29·376	29·368	29·427	29·600	29·314	29·837	„ 11–15
„ 16–20	41·8	39·5	36·2	35·1	35·5	34·1	35·2	33·5	40·5	38·7	33·7	32·5	36·7	36·0	29·188	28·918	28·924	29·032	29·037	28·814	29·249	„ 16–20
„ 21–25	38·3	35·7	33·9	32·9	29·5	28·7	33·4	31·8	36·4	34·4	32·7	31·1	34·9	33·7	29·975	29·778	29·829	29·939	29·658	29·582	29·839	„ 21–25
„ 26–30	43·5	41·4	34·7	32·7	31·5	30·3	34·1	32·2	35·9	33·6	29·7	28·0	31·6	(30·1)	29·972	29·942	30·042	30·189	29·933	29·836	30·160	„ 26–30
„ 31–4	45·2	43·4	39·0	37·4	34·2	(33·3)	36·9	35·3	43·6	42·1	35·3	34·0	38·2	37·5	29·491	29·536	29·688	29·871	29·515	29·490	29·873	„ 31–4
Feb. 5–9	49·1	47·1	45·6	44·1	41·9	40·7	40·0	38·7	48·3	46·8	43·0	41·8	45·3	43·2	29·923	29·544	29·499	29·600	29·819	29·407	29·902	Feb. 5–9
„ 10–14	47·5	45·7	43·7	42·2	39·7	38·4	37·8	36·4	45·3	43·6	38·2	36·6	37·4	35·9	29·770	29·546	29·569	29·662	29·701	29·476	29·921	„ 10–14
„ 15–19	49·4	47·9	48·2	46·0	46·2	44·5	45·7	43·3	47·9	46·4	45·2	43·6	46·1	44·3	29·906	29·648	29·608	29·629	29·920	29·578	30·106	„ 15–19
„ 20–24	46·8	44·9	45·2	42·8	44·9	42·0	44·8	40·6	44·7	42·6	42·6	40·6	43·3	40·8	30·370	30·005	29·839	29·775	30·150	29·774	30·237	„ 20–24
„ 25–1	48·6	47·0	44·5	42·7	41·5	39·0	40·9	38·0	48·4	47·2	41·6	39·3	44·4	41·8	29·814	29·725	29·785	29·887	29·837	29·642	30·103	„ 25–1
Mar. 2–6	49·6	47·0	48·4	45·6	48·3	45·2	(48·0)	(45·3)	48·0	46·3	49·4	45·9	47·7	44·6	29·576	29·463	29·524	(29·671)	29·655	29·467	29·961	Mar. 2–6
„ 7–11	47·8	45·3	44·1	41·8	41·8	39·6	41·9	38·7	46·9	44·8	43·1	40·6	45·6	42·7	29·820	29·483	29·425	(29·488)	29·849	29·425	30·004	„ 7–11
„ 12–16	43·1	40·1	37·2	35·3	35·3	33·3	35·9	33·7	43·7	40·6	37·4	34·9	41·4	38·6	29·834	29·508	29·448	(29·610)	29·639	29·335	29·778	„ 12–16
„ 17–21	49·1	46·9	47·9	45·2	46·4	44·1	48·3	44·6	46·1	43·4	45·1	42·5	44·4	41·9	30·056	29·831	29·796	29·817	29·959	29·731	30·142	„ 17–21
„ 22–26	50·5	46·3	47·0	43·3	45·5	42·8	43·2	41·4	49·3	46·6	50·1	45·9	50·6	46·7	29·822	29·737	29·776	29·913	29·636	29·570	29·915	„ 22–26
„ 27–31	45·3	41·3	41·2	38·3	41·0	37·1	40·7	36·6	44·1	40·2	41·2	(38·0)	42·6	38·7	30·382	30·172	30·100	30·145	30·082	29·897	30·215	„ 27–31
Apr. 1–5	48·5	45·7	45·5	42·7	41·7	38·9	37·5	34·7	46·7	43·7	41·9	39·3	45·0	41·3	30·003	29·780	29·735	29·812	29·833	29·567	29·956	Apr. 1–5
„ 6–10	50·0	46·2	44·0	39·3	41·5	37·8	41·5	37·7	46·9	44·9	41·6	36·2	41·5	37·7	29·799	29·817	29·891	30·023	29·714	29·697	30·048	„ 6–10
„ 11–15	52·2	50·5	50·1	48·1	47·0	45·3	44·2	42·1	51·0	49·8	48·5	46·6	52·3	49·1	29·569	29·401	29·432	29·566	29·553	29·302	29·749	„ 11–15
„ 16–20	50·5	48·0	46·4	44·8	40·8	(38·4)	39·4	36·6	50·7	48·9	46·3	44·2	51·1	48·7	29·251	29·091	29·195	29·387	29·220	28·961	29·403	„ 16–20
„ 21–25	51·4	48·4	46·8	44·6	41·8	39·5	40·2	3 ·4	51·1	48·8	46·4	44·0	50·5	47·3	29·809	29·566	29·605	29·782	29·710	29·418	29·841	„ 21–25
„ 26–30	51·4	48·8	48·4	45·6	46·0	42·9	43·2	42·1	51·8	49·7	49·2	46·1	51·4	48·5	29·819	29·549	29·508	29·616	29·669	29·353	29·774	„ 26–30
May 1–5	51·1	47·5	48·1	44·7	46·1	43·2	44·9	42·2	50·0	46·4	46·5	43·4	49·3	44·7	30·042	29·766	29·702	29·792	29·902	29·611	30·037	May 1–5
„ 6–10	57·1	51·2	53·1	49·1	52·5	47·8	48·0	44·4	51·9	47·4	50·5	46·2	49·7	45·1	30·218	30·099	30·089	30·201	29·996	29·890	30·211	„ 6–10
„ 11–15	53·5	49·0	49·4	45·8	47·7	43·7	44·5	40·4	49·7	46·1	46·6	42·4	46·4	(42·0)	29·968	29·790	29·785	29·900	29·718	29·581	29·920	„ 11–15
„ 16–20	53·2	49·0	50·6	47·2	47·8	43·5	44·7	40·7	52·8	48·8	47·9	44·6	51·9	47·4	30·194	29·919	29·836	29·889	29·960	29·684	(30·072)	„ 16–20
„ 21–25	55·8	51·4	56·5	51·6	58·8	52·4	53·2	49·5	55·1	52·2	58·4	52·8	58·8	53·1	29·865	29·723	29·767	29·923	29·760	29·617	29·987	„ 21–25
„ 26–30	59·0	55·7	54·9	50·5	57·6	52·3	53·8	49·9	57·8	52·7	56·4	51·5	55·4	51·1	30·211	30·031	29·988	30·097	29·915	29·785	30·094	„ 26–30
„ 31–4	58·5	54·1	52·9	49·5	53·1	47·4	48·0	44·3	54·5	49·5	51·0	46·0	49·6	45·3	30·243	30·043	30·001	30·104	29·948	29·788	30·099	„ 31–4
June 5–9	57·4	53·7	54·6	51·1	55·6	49·6	50·2	45·8	55·2	50·9	52·3	47·1	51·2	46·4	30·203	29·959	29·906	30·021	29·868	29·677	29·968	June 5–9
„ 10–14	59·2	55·9	57·5	53·7	55·8	51·7	48·9	47·6	56·8	54·7	57·9	52·9	57·3	54·7	29·677	29·646	29·754	29·953	29·665	29·568	29·941	„ 10–14
„ 15–19	57·6	54·9	58·4	55·2	57·2	53·8	55·1	52·9	58·1	55·2	58·7	55·5	60·9	57·9	29·668	29·414	29 413	29·539	29·486	29·240	29·625	„ 15–19
„ 20–24	56·2	52·0	53·1	49·1	51·8	47·1	48·2	44·4	56·7	53·8	50·3	47·0	55·0	53·4	30·022	29·823	29·827	29·953	29·739	29·599	29·905	„ 20–24
„ 25–29	56·9	54·1	56·6	52·2	55·1	50·9	51·7	48·5	57·7	54·2	55·3	51·0	56·6	51·7	29·878	29·654	29·688	29·833	29·805	29·546	29·963	„ 25–29

NOTE.—The heights in the headings of the temperature columns are those of the thermometer bulbs above the ground. Those in the headings of the pressure columns are those of the barometer cisterns above mean sea-level.

In the above columns the readings which are in brackets are four-day means only, from various causes.

TABLE II.—PART 2.

FIVE-DAY MEANS of the DRY and WET-BULB THERMOMETERS and BAROMETER, from the continuous Records at the Seven BRITISH OBSERVATORIES, July to December 1871.

Five-Day Periods.	Thermometers. Valencia. 12 ft. Dry.	Valencia. 12 ft. Wet.	Armagh. 4 ft. Dry.	Armagh. 4 ft. Wet.	Glasgow. 7 ft. Dry.	Glasgow. 7 ft. Wet.	Aberdeen. 41 ft. Dry.	Aberdeen. 41 ft. Wet.	Falmouth. 11 ft. Dry.	Falmouth. 11 ft. Wet.	Stonyhurst. 7 ft. Dry.	Stonyhurst. 7 ft. Wet.	Kew. 10 ft. Dry.	Kew. 10 ft. Wet.	Barometer. Valencia. 23 ft.	Armagh. 207 ft.	Glasgow. 184 ft.	Aberdeen. 88 ft.	Falmouth. 211 ft.	Stonyhurst. 361 ft.	Kew. 34 ft.	Five-Day Periods.
June 30–4	57·3	54·7	56·9	53·9	57·7	53·4	56·9	52·9	58·1	55·0	56·4	52·8	59·0	55·1	29·624	29·417	29·453	29·577	29·542	29·322	29·756	June 30–4
July 5–9	58·2	55·7	57·4	54·7	57·5	54·3	57·5	53·7	58·9	55·8	57·7	54·7	61·7	56·2	29·847	29·590	(29·551)	29·651	29·825	29·511	30·006	July 5–9
„ 10–14	59·6	57·0	58·7	55·9	59·0	55·1	58·8	55·2	59·0	57·3	59·7	56·4	61·1	57·7	29·771	29·555	29·559	29·662	29·704	29·438	29·863	„ 10–14
„ 15–19	60·1	57·4	59·2	56·0	57·6	54·0	59·8	54·0	62·7	59·7	59·6	55·8	67·3	61·8	29·992	29·732	29·690	29·725	29·836	22·580	29·980	„ 15–19
„ 20–24	58·1	55·2	56·8	54·3	57·0	53·7	56·1	53·1	59·3	55·7	57·2	54·4	61·2	56·4	29·738	29·395	29·348	29·430	29:596	29·243	29·703	„ 20–24
„ 25–29	56·8	53·8	55·5	52·7	54·8	51·5	55·3	52·9	58·2	54·9	55·1	52·0	59·7	54·8	29·624	29·360	29·341	29·435	29·510	29·208	29·661	„ 25–29
Aug. 30–3	58·6	56·3	58·9	56·0	57·8	54·7	59·1	54·9	59·5	56·2	58·1	54·6	60·8	56·6	29·835	29·585	29·558	29·630	29·717	29·460	29·878	Aug. 30–3
„ 4–8	61·1	59·0	62·1	58·8	60·3	57·0	61·4	56·9	62·5	59·2	62·3	58·5	63·4	58·6	30·102	29·869	29·844	29·898	29·941	29·720	30·110	„ 4–8
„ 9–13	62·2	59·2	63·0	59·6	62·8	58·8	63·7	59·3	68·0	63·1	67·2	62·2	70·0	63·4	30·071	29·888	29·886	29·975	29·854	29·714	30·049	„ 9–13
„ 14–18	60·0	57·1	56·2	53·4	58·0	54·3	57·6	55·3	64·3	61·7	61·5	57·8	65·6	60·3	29·816	29·659	29·615	29·731	29·576	29·425	29·782	„ 14–18
„ 19–23	59·8	57·1	56·8	(53·7)	54·8	51·6	55·4	51·1	62·6	59·8	57·9	54·4	63·3	59·3	29·872	[b]29·686	29·625	29·695	29·799	29·536	29·989	„ 19–23
„ 24–28	(59·8)	(55·5)	56·0	(53·4)	55·8	52·6	56·3	51·6	60·1	56·4	57·6	54·0	59·8	54·8	30·115	29·847	29·768	(29·877)	29·996	29·707	30·159	„ 24–28
Sept. 29–2	59·7	57·2	60·7	56·8	60·1	56·1	57·9	55·0	62·3	60·1	61·4	57·9	65·5	60·7	29·917	29·720	29·744	29·857	29·803	29·623	30·004	Sept. 29–2
„ 3–7	57·9	54·5	57·0	53·7	57·2	(54·0)	57·8	53·9	58·7	55·6	56·4	53·7	60·3	56·8	29·842	[c]29·683	29·621	29·707	29·750	29·516	29·935	„ 3–7
„ 8–12	58·3	55·0	55·4	53·6	57·3	54·3	55·8	54·3	59·3	56·3	57·8	54·5	62·3	58·4	29·918	29·797	29·862	30·038	29·652	29·619	29·915	„ 8–12
„ 13–17	59·3	55·2	54·0	51·7	53·5	50·7	52·2	49·1	60·2	56·7	54·0	50·4	59·6	54·2	30·201	30·116	30·157	30·288	29·936	29·940	30·197	„ 13–17
„ 18–22	53·5	49·3	49·6	46·7	48·9	46·0	47·7	45·6	55·4	50·7	48·9	45·6	52·0	47·3	29·893	29·674	29·606	29·697	29·655	29·454	29·849	„ 18–22
„ 23–27	50·8	47·1	46·3	44·1	46·6	43·6	46·2	43·1	53·7	51·1	47·4	44·7	51·6	49·4	29·478	29·391	29·459	29·611	29·195	29·150	29·442	„ 23–27
Oct. 28–2	52·1	48·3	46·1	44·4	45·4	42·7	46·0	42·9	53·6	51·1	46·8	44·5	51·4	49·0	29·528	29·279	29·305	29·468	29·315	29·081	29·455	Oct. 28–2
„ 3–7	51·1	47·9	46·4	44·3	45·6	43·0	46·6	43·0	52·8	50·0	47·3	45·1	50·9	48·2	29·713	29·444	29·383	29·441	29·559	29·270	29·715	„ 3–7
„ 8–12	54·9	52·4	47·6	45·5	41·6	(39·9)	44·3	42·0	54·3	50·4	43·8	41·1	43·8	41·6	30·084	30·033	30·075	30·164	29·997	29·896	30·279	„ 8–12
„ 13–17	56·7	54·9	54·2	52·3	52·5	50·6	51·7	49·9	56·9	54·9	52·0	50·1	49·9	48·3	29·812	29·657	29·697	29·799	29·800	29·609	30·077	„ 13–17
„ 18–22	53·9	50·6	50·2	47·6	51·0	48·5	50·1	48·4	53·9	51·2	51·0	48·8	52·5	50·9	29·792	29·576	29·586	29·680	29·741	29·494	29·956	„ 18–22
„ 23–27	52·9	50·4	50·1	48·2	49·6	47·7	49·5	47·3	53·8	51·4	49·7	47·7	46·3	45·2	30·078	29·822	29·784	29·842	29·973	29·724	30·180	„ 23–27
Nov. 28–1	51·5	48·4	48·4	46·1	47·0	44·8	48·5	45·4	52·5	49·9	47·7	45·1	49·3	46·7	29·468	29·531	29·670	29·864	29·377	29·426	29·753	Nov. 28–1
„ 2–6	48·8	45·5	44·2	41·8	42·1	40·0	42·9	40·8	48·8	[a]47·3	42·3	39·5	42·6	39·6	29·899	29·849	29·931	30·077	29·668	29·683	29·976	„ 2–6
„ 7–11	44·1	40·3	37·3	35·9	38·6	(35·8)	38·0	35·6	44·3	41·6	37·6	35·8	38·1	36·4	29·805	29·513	29·410	29·398	29·544	29·247	29·665	„ 7–11
„ 12–16	50·1	47·6	42·1	40·6	39·4	(38·6)	38·2	36·1	47·5	44·0	39·3	37·0	37·9	36·1	30·031	29·807	29·761	29·801	29·884	29·605	30·031	„ 12–16
„ 17–21	50·3	47·9	44·4	42·3	37·2	35·8	39·5	37·0	45·3	42·0	34·6	(33·0)	31·9	30·2	29·921	29·780	29·861	29·970	29·939	29·785	30·237	„ 17–21
„ 22–26	44·8	42·2	39·5	38·2	38·4	37·1	36·1	35·1	43·8	41·4	37·8	36·7	37·2	36·2	30·020	29·849	29·868	29·982	29·741	29·652	30·003	„ 22–26
Dec. 27–1	39·4	36·0	36·0	34·2	37·2	(34·6)	38·2	35·9	39·0	35·4	36·5	(34·5)	36·6	34·6	30·159	30·020	30·023	30·118	29·793	29·716	29·951	Dec. 27–1
„ 2–6	37·5	34·8	32·8	32·0	32·9	30·5	33·8	32·4	36·6	33·8	33·1	30·9	32·5	(30·8)	30·293	30·075	30·034	30·091	30·021	29·798	30·140	„ 2–6
„ 7–11	43·1	40·4	36·8	35·9	37·7	36·5	37·4	35·7	38·4	35·5	34·9	33·7	31·3	30·3	30·389	30·148	30·084	30·129	30·209	29·971	30·375	„ 7–11
„ 12–16	49·3	46·3	43·8	42·7	41·9	40·6	39·7	37·7	44·9	42·6	42·5	41·7	40·9	40·1	30·317	30·054	30·006	30·063	30·235	29·922	30·378	„ 12–16
„ 17–21	48·4	45·6	43·1	41·6	41·7	39·7	40·1	37·6	47·4	45·0	42·5	40·9	43·3	41·8	29·736	29·459	29·421	29·448	29·714	29·374	29·902	„ 17–21
„ 22–26	47·0	44·3	42·3	41·0	40·2	38·6	38·1	36·5	46·3	44·1	41·4	40·1	42·2	41·1	29·703	29·477	29·483	29·554	29·672	29·418	29·922	„ 22–26
„ 27–31	46·7	43·6	41·7	40·1	42·0	40·3	41·3	39·5	46·4	43·6	41·6	39·7	42·5	40·6	29·517	29·245	29·217	29·273	29·545	29·214	29·779	„ 27–31

NOTE.—The heights in the headings of the temperature columns are those of the thermometer bulbs above the ground. Those in the headings of the pressure columns are those of the barometer cisterns above mean sea level.

[a] Mean of three days only, the instrument being out of action during several hours on the 3rd and 4th.

[b] Mean of three days only, the clock being out of order on the 20th and 22nd.

[c] Mean of three days only, the clock removed for repairs during the 3rd and 4th.

In the above columns the readings which are in brackets are means for four days only from various causes.

APPENDIX II.

Discussion of the Anemometrical Results furnished by the Anemometer at Sandwick Manse, Orkney, 1863–68.

INTRODUCTION.

At the meeting of the British Association at Dublin in 1857, a committee was appointed "to express to the Board of Trade the wish of the British Association that self-recording anemometers "should be established on some of the islands in the Atlantic Ocean, in aid of the meteorological "observations now being carried on on shipboard, under the direction of the Meteorological Depart-"ment of the Board of Trade." In compliance with this recommendation anemometers were constructed, and one was sent by the late Admiral FitzRoy to Sandwick, in the Orkney Islands, at the end of 1862, where it remained in operation until June 1869, at which time it was replaced by a new instrument, corresponding in all respects to the anemometers erected by the Meteorological Committee at their several British observatories.

The anemometer in question was placed under the superintendence of the Rev. C. Clouston, LL.D., the minister of the parish, who has kept a meteorological register for more than 40 years in that district. Some remarks by him on the climate of Orkney have been printed in the Fifth Number of Meteorological Papers published by authority of the Board of Trade. The frequent valuable notes made on the anemograms themselves, and in communications relating to them, show the great interest taken by Dr. Clouston in the working of the anemometer, and the care he has exercised in keeping it for so many years in an efficient condition. The Committee cannot but feel how fortunate it has been for the cause of science, that at so distant a station as Sandwick the instrument should have been entrusted to a gentleman so eminently qualified to undertake its superintendence.

It was erected in a wooden building constructed for the purpose, the cups and wind-vane being at an elevation of about 10 feet above the ground and 100 feet above the sea. Sandwick Manse, close to which the instrument was placed, is within two miles of the Atlantic Ocean, on the west coast of the Mainland, or largest of the Orkney Islands, in lat. 59° 2′ north, and long. 3° 18′ west, and lies at the head of a small bay and fresh-water loch extending from W.N.W. to E.S.E. (true). The ground slopes gradually from the sea and loch, the only hills in the neighbourhood being a ridge about two miles to the S.S.W., rising to nearly 500 feet, and another to the N.N.W. between two and three miles distant, and rising above 400 feet. The only building at all in the vicinity of the instrument was the Manse, which was at a distance of 170 feet in a S.W. direction from it, and the only shrubs near it were on a lower level. Trees there are none at all near the site.

In short it was placed on an eminence, surrounded by lower land, without any object more lofty than it to affect the wind except the Manse, which could not have much influence.

The instrument from which the observations in question have been obtained is an anemometer on Dr. Robinson's principle, with Beckley's additions. It was constructed by Mr. P. Adie of London. It resembles closely, as regards its size and its general construction, the anemographs erected by the Meteorological Committee at their observatories, and described, with engravings, in their Annual Report to Parliament for 1867. A description of the general theoretical principles of these instruments will be found in a paper by the Rev. Thos. Romney Robinson, D.D., F.R.S., of Armagh, read before the Royal Irish Academy in 1850, and printed in Vol. XXII. of their Transactions.

The friction co-efficient of the instrument had not been ascertained, and consequently no correction has been applied to the following observations; but from experiments made by Dr. Robinson, and described in his paper, and in the Report of the Meteorological Office for 1867, above quoted, it appears that friction exerts an influence only in small velocities (0–10 miles an hour), and that in higher velocities it may be entirely neglected.

No systematic treatment of the materials furnished by these anemometers had ever been undertaken by the office on the plan suggested by Dr. Robinson, admittedly the highest living authority on all anemometrical questions. It was therefore determined by the Committee to commence the tabulation of these observations from Sandwick, for the six successive years 1863–1868, during which the instrument had remained in operation.

The first step was to convert the continuous curves of the self-recording instrument into their hourly numerical equivalents, both for direction and velocity. This has been effected by means of a glass tabulating scale, graduated so as to give, for each hour, the direction of the wind and the space traversed by it. The direction has been tabulated to all points of the compass, reckoning from the North as zero, round by the East.

The direction given is that recorded exactly at the hour line, but in the case of the existence of much oscillation at the time, the mean direction has been taken. The epochs of any sudden changes were also noted at this step. As regards velocity, the number of statute miles traversed by the wind during the 60 minutes of which the hour's number is the centre has been given. This portion of the work has been the most laborious. The tabulations have been thoroughly checked according to the regulations laid down by the Committee in their Annual Report for 1868, and the sum total of the tabulated velocity each day was found to agree exactly with that shown by the instrumental curve. Astronomical time has been used throughout.

The office is indebted to the great kindness of Dr. Robinson for communicating his plan for carrying out the subsequent processes of the discussion, and for eventually finding the absolute motion of the air at the place of observation, in the annual mean direction. In the course of his remarks Dr. Robinson says,

"To obtain from these data any information which may lead to general views it is necessary to "combine them so as to bring out any laws by which they are connected.

"At first sight nothing seems more hopeless, for the seemingly capricious changes of the wind "have become a proverb. But it is a certain truth that whenever there exists in any series of "phenomena a definite element, even though at first imperceptible and overshadowed by irregular "fluctuations, yet, if enough of observations be given, it can assuredly be disentangled from the "seeming chaos. Such definite elements may be expected here, for all or nearly all the causes of "wind depend on variations of temperature; these again vary with the hour of the day and the season "of the year. The rule of grouping should therefore be by hours, in the first instance, and of such a "kind that any number of each can be combined without limit, and without repeating previous work "for days or years.

" No plan fulfils this object so well as the method of co-ordinates. Let V be the hourly velocity " of the wind, D its angle with the meridian measured from the north; the northern component " N = V cos D, the eastern one E = V sin D. Suppose we want the mean V and D for any " period, say a day. Add all the N's for the time, remembering that N is (−) from east through south " to west, and east is (−) from south through west to north. Let these sums, divided by 24, be N′ and " E′ then $\tan D' = \frac{E'}{N'}$ and $V' = \frac{N'}{\cos D'} = \frac{E'}{\sin D'} = \sqrt{N'^2 + E'^2}$."

This computation of the co-ordinates is too tedious where such a large number of observations have to be dealt with, and they have been rapidly obtained by means of a traverse table specially arranged in this office for the work.

Having obtained these rectangular components for every hour of the six-yearly period under consideration, and grouped them in such a way that like hours of each in the six successive years immediately followed each other, the next thing to be done was to take the mean at each hour of every day in the year. These means are given in Table I., the previous steps, being only preliminary, not being shown here. As was to be expected, these means do not exhibit any particular accordance. It is not considered probable that less than 12 or even 15 years will show much correspondence in the hour numbers for like days.

In this table it will be observed that several of the means are printed in italics. This indicates that they are for five years only. Occasional interruptions from stoppage of the clock, or from temporary derangement of the instrument, are unavoidable.

Interruptions from the latter cause have been somewhat frequent, owing to the extremely exposed position of Sandwick, and also to the great difficulties of obtaining workmen in the neighbourhood to repair occasional damage.

Having found these hourly means for each day in the year, the next step was to mean them for the whole month. This has been done in Table II. In a series extending over a greater number of years probably 5, 10, or 20-day means might be preferable The numbers in Table II., though more regular, are yet too discordant to be used singly, and they have therefore been grouped into three-hourly periods. The 24-hourly mean in each month is also shown.

A glance at this table shows that the southerly component (− N) is at its maximum in January, and that it almost wholly disappears in July. Also that the westerly component has its absolute maximum in February and a second maximum in December; but in all the months, from March to October inclusive, this yields more or less to the easterly component, and in the means for the month of May it entirely disappears.

Table III. gives the mean components, grouped for day and night hours separately, with the resultant velocity and direction, and the absolute atmospheric translation for each month, for the six-yearly period.

To these are added the sun's altitude and azimuth for the middle of each month and for the middle of each three hours. The azimuth is reckoned from the north round by the east, the same as the wind directions.

The greatest excess of wind was in December, the actual translation in the mean direction (for six years) being 37,051 miles. The least was in March and August, being only 10,714 miles. The

resultant direction changed from south-westerly to S.E. in May, and to W. by N. in July, as shown below:—

January	S. 52° W.
February	S. 69 W.
March	S. 32 W.
April	S 11 W.
May	S. 45 E.
June	S. 44 W.
July	N. 77 W.
August	S. 42 W.
September	S. 46 W.
October	S. 40 W.
November	S. 78 W.
December	S. 63 W.

Having examined the variation of the components during the course of the day, it remained to examine it during the year.

These results are given in Table IV., and a column has been added containing the average velocity of the wind in miles per hour during each month, without reference to its direction; for it is supposed that the decrease of the components in approaching midsummer is not entirely due to any diminution in the velocity of the wind, but to easterly changes in its direction. With this table are also given the resultant velocity and direction for every three hours of the day. The greatest mean velocity (in any direction) was 20·7 miles an hour in February, and the least 12·0 miles in July. The mean hourly velocity for the six years was 16·1 miles.

In Table V. the mean components and resulting direction and velocity are given for the six months when the sun is north of the equator, and for those when it is south of the equator, during the day and the night separately, and the same for the whole year, also the absolute motion of the air at the place, in the annual mean direction.

This table shows that during the summer months the southerly component is slightly in excess of the westerly, but for the winter months the westerly component greatly exceeds the southerly. It also appears that the resultant velocity during the day is slightly greater than during the night. The resultant annual direction is S. 53° W., the resultant hourly velocity being 4 miles.

Table VI. is a general summary (made from the first tabulations, quite independently of the foregoing tables), which it is thought will be more interesting to *general* readers than the components. For each month the mean velocity and mean direction in each octant of the compass are given, and also the number of hours during which the wind blew in each; the velocity and direction being treated *separately*, and meaned arithmetically. The number of hours during which the velocity reached or exceeded 30 miles an hour is added, and the number during which the anemometer was at rest; also the maximum force observed, with its direction and time of occurrence. A column is added showing the number of hours lost in each month. The monthly means of barometer and exposed thermometer, corrected and reduced to sea level, are also given. The latter are taken from observations supplied by Dr. Clouston to the Scottish Meteorological Society, and published in the Society's Journal. The hours to which they refer are 9 a.m. and 9 p.m. The following, for example, is a specimen of the information given by the summary for the month of January 1863.

The wind was in the octant *from* N. to N.E. (including N.E. but not N., which is embraced in the octant from N.W. *to* N.) for 30 hours, the mean velocity being 20·4 miles an hour, and the mean direction 30°, signifying, of course, N. 30° E., and so on through the other octants. Also that the velocity reached (or exceeded) 30 miles an hour 92 times, and that there were 32 hours calm. The maximum velocity recorded during the month was 62 miles per hour, on the 19th and 26th, at 1 and 12 hours, the direction being W.N.W. and W. respectively. Two hours were lost; these refer exclusively to wind observations, and not to the observations of barometer and thermometer. The mean readings of barometer and thermometer for that month (obtained from two observations daily) were 29·354 inches and 40°·1 F.

A few words are added at the foot of each table, giving the *per-centage* of the prevailing and also of the least frequent winds for the month.

Dr. Clouston, in his "Remarks on the Climate of Orkney,"* speaking from observations taken every morning and evening during the 33 years, 1827–1859, says: "The west used to be considered "the most prevalent wind in Orkney, but it appears not to have been so for the period noted. The "west wind indeed prevails more than that from any other cardinal point, but the S.E. prevails "above it."

In the present investigation for the six years 1863–8, from *continuous* observations, the prevalent wind was S.W. $\frac{1}{4}$W.

The whole of this calculation has been carried out by Mr. Jas. S. Harding, jun., with the assistance of some other members of the staff of the office.

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* Fifth Number of Meteorological Papers, published by the Board of Trade. 1861.

TABLE I.—Showing the MEAN COMPONENTS of the WIND at ORKNEY for each Hour of the Year (average of six) during the period 1863-68.

ORKNEY. JANUARY 1863-8.

Hours	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 7·0	− 7·7	− 6·2	− 8·2	− 5·6	− 7·4	− 6·8	−10·3	− 7·7	−11·3	− 9·7	− 8·7	− 8·5	− 9·0	− 7·8	− 8·8	−11·0	− 4·5	−13·2	− 4·4	−11·9	− 5·5	−10·6	− 5·8	1
2	− 8·7	− 8·3	− 8·6	− 8·1	− 7·6	− 8·3	− 8·9	− 5·3	− 8·7	− 4·6	− 9·1	− 4·7	−10·0	− 2·4	− 9·1	− 1·7	−11·2	1·1	−11·5	0·9	−13·0	5·4	−11·3	− 1·0	2
3	− 7·9	− 9·3	−14·0	−10·4	−13·2	−11·0	− 6·5	− 8·5	− 7·6	− 5·0	− 9·6	− 1·9	−11·1	− 3·3	−12·3	− 0·7	−15·1	0·9	−14·5	− 0·6	− 3·4	0·8	−12·1	− 2·1	3
4	− 1·8	− 9·0	− 3·4	− 7·7	− 5·6	− 8·3	− 5·0	− 6·9	− 2·3	− 8·2	− 1·7	− 8·0	− 3·1	− 8·1	− 3·9	− 7·8	− 3·1	− 7·0	− 3·8	− 9·5	− 1·8	− 9·0	− 2·5	− 7·8	4
5	− 7·6	− 5·4	− 7·2	− 5·0	− 5·7	− 3·2	− 5·3	− 3·2	− 4·2	− 3·9	− 2·8	− 2·1	− 4·9	− 0·5	− 6·7	0·5	− 8·2	4·9	−10·7	5·1	−12·2	3·6	−11·9	3·5	5
6	− 2·0	− 1·2	− 2·7	− 1·6	− 4·3	− 2·0	− 4·6	− 2·0	− 1·6	0·7	− 1·8	− 1·3	− 3·4	− 2·4	− 3·2	− 2·8	− 3·0	− 0·7	− 4·6	− 1·1	− 5·2	− 0·8	− 4·8	− 5·0	6
7	− 2·2	− 3·4	− 0·7	− 0·2	− 3·5	0·4	− 2·3	0·1	− 2·5	0·3	− 3·3	0·2	− 4·3	0·6	− 3·6	− 1·1	− 2·1	2·4	− 1·8	3·9	− 2·5	3·0	− 2·2	2·6	7
8	0	4·1	0·4	3·7	0·1	2·4	0·4	4·2	0·2	3·6	0·2	5·5	0·4	5·4	0·3	3·9	0·7	3·2	0·5	3·3	− 0·7	2·3	− 0·7	0·7	8
9	3·2	− 0·1	3·5	− 0·4	3·3	1·3	0·3	3·0	1·1	1·8	2·2	5·0	1·7	5·4	0·6	7·0	− 2·4	7·7	− 1·8	8·4	− 1·7	8·3	− 2·7	8·4	9
10	− 4·2	3·1	− 2·0	1·0	− 1·4	− 1·1	− 3·0	3·0	− 1·7	0·8	− 3·2	1·9	− 2·9	− 0·1	− 5·3	0·9	− 2·2	− 1·2	− 2·8	− 5·3	− 0·9	− 3·5	− 1·0	− 4·3	10
11	− 7·1	− 0·8	− 6·1	− 0·2	− 3·8	0·1	− 4·3	0	− 6·3	0·6	− 6·9	0	− 5·4	0·4	− 4·8	− 0·8	− 4·2	− 2·4	− 5·6	− 3·0	− 4·3	− 0·5	− 3·3	− 2·7	11
12	− 0·4	− 3·1	− 0·6	− 0·8	− 2·5	− 1·0	− 2·7	− 0·1	− 3·7	2·6	− 4·2	2·0	− 5·8	3·1	− 5·8	1·4	− 5·4	0·6	− 6·0	− 0·8	− 7·1	− 1·3	− 6·7	− 2·4	12
13	− 7·4	− 8·9	− 5·5	− 4·2	− 5·2	− 6·1	− 4·0	− 5·7	− 3·8	− 3·8	− 1·8	− 3·3	− 0·6	− 4·3	0·2	− 6·2	− 0·5	− 6·2	0·6	− 7·5	2·6	− 7·3	1·7	− 6·7	13
14	− 2·0	− 4·8	− 1·7	− 4·9	− 3·2	− 5·2	− 2·0	− 5·6	− 5·9	− 8·1	− 3·5	− 8·9	− 4·7	−10·2	− 2·9	−10·5	− 3·7	− 7·4	− 5·6	− 6·9	− 7·0	− 6·1	− 8·1	− 8·0	14
15	−12·0	−18·0	− 9·2	−17·3	− 6·9	−17·7	− 8·2	−18·3	− 8·1	−18·6	− 7·9	−17·4	− 5·0	−16·1	− 7·6	−15·3	− 6·3	−16·0	− 6·4	−17·4	− 5·5	−17·4	− 4·2	−15·8	15
16	0·7	− 4·1	− 1·1	− 3·1	− 1·4	− 3·9	− 1·3	− 5·3	1·4	− 4·6	− 0·9	− 5·0	− 3·0	− 3·7	− 4·5	− 6·4	− 3·0	− 5·8	− 5·6	− 6·9	− 5·1	− 3·4	− 5·4	− 5·7	16
17	*1·6*	*− 8·6*	*− 1·8*	*− 6·9*	*− 4·9*	*− 5·9*	*− 7·3*	*− 7·1*	*− 5·9*	*− 7·6*	*− 4·4*	*− 4·5*	*− 5·2*	*− 7·0*	*− 2·2*	*− 8·4*	*− 8·2*	*− 8·4*	*− 1·3*	*− 7·2*	*− 2·6*	*−12·0*	*− 3·6*	*−12·7*	17
18	− 2·6	− 2·0	− 1·9	− 1·4	− 2·3	− 1·6	− 1·4	− 1·0	− 1·0	0·6	− 4·5	0·5	− 5·7	0·8	− 6·0	− 0·2	− 2·9	− 1·4	− 2·7	− 1·2	− 5·2	1·6	− 6·3	− 1·0	18
19	7·1	−13·4	5·9	−19·4	2·1	−10·9	2·4	−12·7	2·4	−11·0	3·0	−12·7	1·6	−13·4	1·6	−12·5	− 2·1	−10·7	− 2·0	− 9·4	− 1·3	− 7·8	− 0·6	− 6·7	19
20	7·9	− 2·6	5·7	− 1·8	5·8	− 4·0	7·1	− 2·1	6·3	− 8·3	6·7	− 8·9	7·3	−11·5	5·6	−12·3	7·7	− 9·4	7·5	− 8·5	3·1	− 9·9	2·3	− 7·1	20
21	− 4·0	− 1·2	− 4·1	− 1·9	− 2·8	− 1·5	− 4·4	− 2·5	− 2·5	− 3·1	− 2·1	− 1·7	− 4·1	− 2·7	− 3·5	− 1·8	− 4·7	− 2·0	− 4·4	− 3·1	− 3·7	− 1·8	− 6·5	− 1·2	21
22	− 4·0	− 6·4	− 3·5	− 7·5	− 3·9	− 6·9	− 5·1	− 4·7	− 5·3	− 2·9	− 4·3	− 1·8	− 3·3	0	− 3·3	0·1	− 2·7	0·1	− 0·8	0·5	1·9	2·3	1·3	1·8	22
23	− 2·7	−12·9	0·6	−10·4	− 2·9	−10·2	− 3·0	− 9·3	− 5·1	− 8·8	− 5·0	− 9·7	− 5·3	−11·4	− 3·1	−15·8	− 2·1	−13·2	− 5·1	−16·6	− 5·1	−15·3	− 6·8	−12·7	23
24	− 4·4	*−13·4*	*− 8·9*	*−12·5*	*− 6·2*	*−12·2*	*− 5·2*	*− 8·0*	−12·7	− 8·6	−10·0	− 8·2	− 9·5	− 9·6	−10·9	− 9·1	−10·8	− 7·6	−11·5	− 9·4	− 9·8	−15·5	− 5·9	−11·5	24
25	6·0	−16·4	4·0	−14·7	4·2	−14·3	7·6	−12·3	8·4	−13·0	7·2	− 9·8	8·4	−11·7	6·8	−13·9	7·6	−15·2	5·6	−16·4	5·0	−16·8	4·5	−17·2	25
26	− 5·7	− 7·3	− 7·5	− 4·6	− 9·2	− 5·6	− 9·9	− 5·3	−12·1	− 9·0	−14·9	−11·4	−14·6	− 9·2	−14·0	− 9·7	−13·0	−11·1	−14·0	−12·6	− 6·8	−16·0	− 5·7	−19·0	26
27	− 2·4	−10·2	− 2·9	−14·0	− 2·4	−13·0	− 5·3	−15·7	− 5·4	−15·4	− 5·6	−14·3	− 3·0	−13·1	− 4·1	−12·8	− 4·0	−11·1	− 4·5	− 8·7	− 4·8	− 9·8	− 3·2	− 8·8	27
28	*− 0·9*	*− 8·9*	*− 1·0*	*− 7·6*	*− 3·0*	*− 6·1*	*− 1·5*	*− 7·9*	*− 2·4*	*− 9·1*	*− 4·0*	*− 9·0*	*− 4·4*	*−10·0*	*− 3·0*	*−11·3*	*− 4·6*	*−10·8*	− 6·7	−13·7	*− 9·6*	*−10·5*	*− 9·9*	*−10·7*	28
29	− 3·0	− 5·9	− 0·3	−11·0	− 3·9	−17·9	− 1·3	−13·4	− 0·7	−10·6	− 1·9	− 9·2	− 3·9	− 9·2	− 4·8	− 5·8	− 6·8	− 2·9	− 5·9	− 6·1	*− 5·9*	*−12·8*	*− 5·0*	*−13·0*	29
30	−11·0	− 8·9	−12·4	− 8·1	−12·0	− 8·2	−11·4	− 6·3	−10·9	− 6·8	−12·8	− 8·4	−11·9	− 8·0	−12·6	− 5·7	−13·4	− 2·9	−12·2	− 3·2	− 8·5	− 1·5	− 7·4	0·1	30
31	− 4·1	− 3·3	− 7·9	− 2·9	− 7·5	− 1·9	− 8·6	1·7	− 8·4	2·8	− 7·1	4·7	− 8·7	− 5·9	− 9·6	8·0	−10·9	9·3	−14·0	10·4	−13·9	10·9	−13·5	6·2	31
Means	− 2·86	− 6·24	− 3·10	− 6·20	− 3·72	− 6·17	− 3·60	− 5·40	− 3·76	− 5·42	− 3·99	− 4·87	− 4·29	− 5·39	− 4·50	− 5·15	− 4·73	− 4·12	− 5·32	− 4·66	− 4·74	− 4·70	− 4·91	− 5·28	Means.

JANUARY.

Hours	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	−11·2	− 1·8	− 8·1	− 1·4	− 8·7	− 3·7	−11·3	− 3·2	−10·0	− 3·4	− 8·7	− 5·9	− 9·8	− 5·9	−10·0	− 6·0	− 8·9	− 6·6	− 8·2	− 5·6	− 8·5	− 6·6	− 9·3	− 8·5	1
2	− 8·0	− 5·0	− 5·7	− 5·7	− 1·7	− 7·3	− 0·6	− 8·6	− 0·2	−10·2	1·7	−11·3	0·1	−12·3	− 8·6	−11·2	− 9·1	−11·1	− 9·8	−10·8	− 9·3	−10·1	− 4·5	−11·3	2
3	− 9·9	− 6·2	−10·3	− 4·8	− 6·9	− 7·5	− 8·8	− 6·3	− 9·4	− 5·6	− 9·3	− 5·7	− 4·9	− 8·7	− 5·6	− 9·3	− 7·9	− 9·0	− 6·2	− 8·5	− 5·7	−10·9	− 4·9	−11·2	3
4	− 2·9	− 8·0	− 3·3	− 7·3	− 3·5	− 6·2	− 5·2	− 6·0	− 3·3	− 5·9	− 4·9	− 4·4	− 7·0	− 3·8	− 6·1	− 3·7	− 4·1	− 3·5	− 7·1	− 4·7	− 3·4	− 2·8	− 3·5	− 3·9	4
5	−11·7	3·6	−13·0	5·9	−13·2	3·8	−10·7	5·6	− 5·9	3·8	− 2·5	− 0·9	− 3·9	− 3·2	− 4·3	− 3·6	− 3·5	− 4·6	− 2·4	− 1·6	− 0·7	− 2·7	− 2·0	− 1·9	5
6	− 7·0	− 1·6	− 8·1	− 2·0	− 8·0	− 0·9	− 8·8	− 3·0	− 7·6	− 2·7	− 8·2	− 3·5	− 8·1	− 2·3	− 8·8	− 4·0	− 8·6	− 3·3	− 8·4	− 1·3	− 6·6	− 2·3	− 2·7	− 3·6	6
7	− 1·8	3·6	− 1·6	4·5	− 1·3	5·5	− 2·2	5·4	− 1·6	7·2	− 3·2	7·7	− 3·3	8·2	− 4·0	8·0	− 3·1	7·8	− 2·7	7·3	− 0·5	5·1	− 0·1	2·0	7
8	0·3	3·8	0·5	− 1·6	3·6	− 1·2	2·1	− 2·4	3·8	− 0·3	4·8	− 1·0	5·6	− 0·6	4·2	− 1·2	4·1	− 1·5	2·8	− 0·9	4·7	− 1·3	3·9	0	8
9	− 5·8	5·5	− 1·5	5·1	− 2·5	4·8	− 2·0	3·5	− 2·9	4·3	− 3·5	1·6	− 3·3	0·9	− 5·2	− 1·2	− 4·7	− 1·7	− 3·5	− 0·1	− 3·1	2·5	− 4·1	3·6	9
10	0·3	− 5·8	− 1·5	− 4·9	− 0·5	− 5·2	0·7	− 3·8	− 1·5	− 4·6	− 0·7	− 1·7	− 1·6	− 0·7	− 1·6	− 1·1	− 1·6	1·3	− 3·3	− 0·6	− 4·7	− 0·9	− 5·0	− 0·4	10
11	− 0·9	− 4·0	− 1·3	− 3·2	− 2·5	− 0·1	− 2·1	− 0·1	− 2·9	0·6	− 3·9	− 1·0	− 3·3	− 4·4	− 1·7	− 5·3	− 1·1	− 2·8	− 2·1	− 8·5	0·8	− 2·4	3·6	− 4·3	11
12	− 6·0	− 2·5	− 3·2	− 2·4	− 4·6	− 4·2	− 4·9	− 3·5	− 6·1	− 2·0	− 5·0	− 0·9	− 4·4	− 0·4	− 8·4	− 2·4	− 9·0	− 8·1	− 6·9	− 5·4	− 8·6	− 6·2	− 8·7	− 8·0	12
13	0	− 5·7	− 0·4	− 2·7	0·5	− 2·0	− 2·5	− 2·1	− 3·1	1·2	− 4·4	− 0·2	− 5·0	− 0·1	− 4·6	0·8	− 5·1	1·7	− 5·3	1·8	− 5·4	− 2·2	− 2·9	− 4·8	13
14	− 7·8	− 7·6	− 9·9	− 6·7	− 9·6	− 8·5	− 9·8	− 6·5	−10·5	− 7·7	− 9·5	−13·7	− 3·2	−17·7	− 5·5	−16·5	− 5·0	−16·8	− 5·5	−15·0	− 7·6	−15·6	− 8·4	−15·6	14
15	− 1·6	−13·9	− 1·3	−13·0	− 0·5	−14·5	− 1·6	−12·9	0·2	−11·5	2·8	−12·7	1·6	−10·5	1·2	− 9·7	2·0	− 6·3	1·9	− 4·2	2·3	− 1·8	3·2	− 2·6	15
16	− 4·6	− 6·9	− 6·7	− 6·7	− 6·1	− 6·6	− 7·6	− 4·4	− 5·2	− 4·7	− 3·6	− 6·1	− 2·4	− 7·3	− 3·1	− 4·4	− 5·4	− 5·4	− 4·7	− 6·2	− 5·4	− 3·5	− 1·1	− 7·8	16
17	− 5·7	−13·1	− 4·0	−11·7	− 8·4	−10·1	− 4·8	− 9·7	− 6·3	−10·4	− 4·7	−12·0	− 7·2	−11·1	− 4·9	− 8·0	− 2·4	− 8·0	− 2·1	− 7·7	0·4	− 4·3	− 0·6	− 4·9	17
18	− 3·0	0·9	− 1·4	1·0	− 1·6	− 2·1	− 0·6	− 1·1	− 1·7	− 3·0	− 0·2	− 6·3	1·4	− 3·4	3·3	− 6·4	3·9	− 7·7	7·9	− 9·7	6·6	−12·0	7·2	−12·0	18
19	2·2	− 2·7	2·4	− 5·2	1·1	− 3·4	1·2	− 0·6	2·0	− 2·1	2·3	− 0·4	3·9	0·1	3·6	0·5	3·3	− 0·7	2·8	− 0·6	5·1	− 0·2	5·0	− 2·0	19
20	0·4	− 6·0	− 1·5	− 4·8	− 1·7	− 1·7	− 3·8	− 1·9	− 3·3	− 2·3	− 2·0	− 2·3	− 3·1	− 3·5	− 2·4	− 4·1	− 3·2	− 6·2	− 3·2	− 5·8	− 3·3	− 4·3	− 3·6	− 2·3	20
21	− 7·2	0·6	− 8·9	− 1·0	−11·2	− 0·5	−10·6	1·0	−10·6	1·2	−11·8	0·4	− 9·3	− 0·6	− 7·3	− 0·8	− 4·6	− 2·7	− 4·8	− 5·1	− 4·6	− 6·7	− 4·7	− 4·9	21
22	− 0·4	3·0	− 0·9	3·8	− 0·9	4·1	− 2·4	2·5	− 2·6	3·3	− 6·6	1·9	− 6·4	1·7	− 7·6	0·1	− 7·5	− 0·6	− 5·3	− 7·9	− 3·7	− 9·2	− 2·8	−10·1	22
23	− 8·4	−11·2	− 7·6	−11·0	− 7·6	−11·1	− 7·5	−11 6	− 7·3	−10·4	− 8·4	−10·3	− 6·3	−10·2	− 7·0	− 9·8	− 8·3	− 9·8	− 8·1	− 9·2	− 7·6	−10·3	− 3·9	−10·9	23
24	− 2·7	−13·0	− 2·5	−13·4	0·9	−12·2	0·1	−11·3	− 1·6	−11·7	− 2·6	−11·6	− 4·5	−11·0	5·0	−15·5	5·0	−14·4	3·7	−13·7	3·4	−13·8	6·6	−12·7	24
25	1·9	−18·5	1·5	−19·7	3·2	−16·2	1·8	−17·0	3·1	−17·6	− 0·5	−17·7	1·4	−15·1	0	−15·4	0·7	−14·5	− 1·4	−11·5	− 2·2	−10·0	− 2·8	− 8·6	25
26	− 5·8	−18·7	− 5·3	−15·8	− 1·7	− 7·5	− 0·8	− 8·8	− 0·5	− 6·2	− 2·8	− 8·0	− 6·4	−11·6	− 2·0	−10·1	− 3·3	− 9·8	− 3·0	− 8·5	− 1·9	− 8·5	− 2·1	−10·2	26
27	− 2·7	−10·4	0·7	− 4·1	2·3	− 2·0	0	− 3·6	2·0	− 2·3	0·4	− 2·9	1·4	− 1·5	0·4	− 0·8	− 1·0	− 1·5	− 3·7	2·1	− 0·2	− 0·9	0·8	− 2·4	27
28	− 9·3	− 9·2	− 7·4	− 9·3	− 8·6	− 7·7	− 8·9	− 8·3	−10·9	− 8·4	−12·6	− 8·3	−16·0	− 7·1	−16·3	− 4·4	−17·3	− 3·4	−21·1	2·2	−18·3	− 3·6	−13·9	− 8·5	28
29	− 6·9	−11·0	− 7·7	−10·3	− 9·7	−12·0	− 5·3	−11·6	−11·7	−13·0	− 0·2	−19·6	− 1·2	−17·7	− 2·3	−16·2	− 3·4	−16·6	− 4·4	−13·8	− 5·9	−14·0	−10·6	− 8·4	29
30	− 6·3	− 2·3	− 4·9	− 1·2	− 6·1	− 2·2	− 7·0	− 0·6	− 8·2	− 0·5	− 8·2	− 0·6	− 3·1	− 7·5	− 5·6	− 5·9	− 4·6	− 5·8	− 3·0	− 5·1	− 3·4	− 2·9	− 5·3	− 3·9	30
31	−12·2	3·4	−10·9	− 0·4	−11·2	− 0·1	−13·8	− 1·1	−13·3	− 3·8	−11·5	− 5·2	−12·4	− 6·5	−13·8	− 3·1	−10·8	0	−10·0	2·4	− 6·3	1·6	− 6·5	3·1	31
Means	− 4·67	− 5·18	− 4·32	− 4·52	− 3·93	− 4·47	− 4·45	− 4·12	− 4·42	− 4·15	− 4·11	− 5·25	− 3·86	− 5·61	− 4·16	− 5·51	− 4·02	− 5·54	− 3·96	− 5·10	− 3·25	− 5·19	− 2·70	− 5·53	Means.

FEBRUARY.

Hours	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days. 1	− 5·5	4·0	− 8·1	− 0·9	− 8·4	− 0·5	− 9·6	− 0·2	− 9·1	0·7	−11·4	− 1·8	− 9·0	− 5·4	− 7·7	− 8·1	−11·3	−14·0	−15·0	−16·4	−13·7	−18·6	−11·8	−13·0	Days. 1
2	−14·1	− 8·5	−13·6	−10·0	−10·3	−17·8	− 9·7	−17·2	− 9·4	−17·4	− 7·2	−19·1	− 8·8	−16·5	− 9·4	−18·9	−10·0	−17·7	−12·4	−12·2	−13·7	−14·3	−14·7	−14·1	2
3	− 6·2	−20·2	− 4·0	−20·1	− 1·2	−35·5	− 2·5	−33·0	− 6·0	−16·3	0·2	−18·1	− 3·4	−15·7	2·6	−13·2	3·7	− 9·4	− 2·5	−10·3	− 1·1	− 9·0	− 0·7	− 9·1	3*
4	− 5·2	−15·9	− 5·0	−14·8	− 4·5	−13·2	− 3·4	−10·4	− 0·7	−17·9	0·6	−18·0	2·0	−22·7	4·4	−17·7	5·4	−19·6	5·6	−16·6	3·2	−18·1	3·7	−15·5	4
5	− 6·8	−17·7	− 7·5	−17·7	− 6·4	−14·4	−11·5	−11·8	−10·8	−14·1	−10·8	−13·6	−10·2	−14·5	−13·3	−13·8	−14·3	−13·8	−15·0	−14·5	−11·4	−14·6	−11·9	−17·4	5
6	− 3·0	−15·4	2·0	−15·0	1·7	−16·1	0·9	−10·6	1·3	−12·2	− 0·2	−18·1	− 2·1	−14·0	− 0·2	−13·2	0·2	−12·1	− 1·2	− 9·1	− 1·9	− 9·0	− 2·9	− 8·7	6
7	−11·5	−15·4	−13·1	−18·4	−12·2	−19·1	− 6·5	−22·6	− 3·3	−18·7	− 4·8	−20·2	− 3·9	−11·5	− 0·8	− 7·4	− 1·9	−21·1	− 0·1	−19·9	− 1·9	−19·6	− 1·7	−18·6	7
8	5·8	− 7·1	6·1	− 5·7	7·0	− 7·3	7·4	− 9·3	8·3	− 7·4	8·2	− 6·2	6·1	− 5·2	5·3	− 5·6	5·0	− 3·0	3·4	− 3·8	4·3	− 3·4	4·2	− 3·1	8
9	− 5·8	4·3	− 6·1	3·9	− 6·8	3·5	− 7·3	2·2	− 6·8	2·7	− 8·6	0·6	− 8·1	− 0·8	− 2·9	− 4·0	− 4·0	− 4·5	− 3·7	− 4·2	− 1·8	− 2·3	− 3·9	− 3·1	9
10	−12·7	− 6·3	−14·1	− 8·1	−11·8	− 8·8	−12·4	− 8·6	− 6·3	− 8·6	− 6·8	− 9·5	− 6·0	− 7·6	− 7·1	− 7·2	− 7·1	− 7·3	− 8·7	− 6·4	− 8·5	− 4·8	− 4·7	− 8·7	10
11	− 6·5	−11·5	− 6·0	−11·8	− 3·1	−13·3	− 1·3	−13·5	− 3·4	−13·2	− 1·3	−13·2	− 0·3	−12·0	− 1·3	−13·6	− 2·0	−10·4	− 1·8	−10·3	− 2·9	− 8·0	− 5·7	−10·1	11
12	− 1·6	−14·3	− 1·7	−14·9	− 0·9	−16·6	1·2	−18·7	1·1	−18·7	3·2	−22·0	3·5	−19·4	4·6	−18·4	4·3	−18·4	4·8	−15·7	3·0	−12·7	− 0·4	−11·6	12
13	− 5·1	0·2	− 3·6	− 1·8	1·0	− 8·4	6·0	− 7·3	7·7	− 8·1	6·1	− 8·1	5·4	− 8·5	3·7	−11·0	2·4	−11·0	1·6	−11·7	0	−11·5	− 2·2	−11·7	13
14	−11·0	−18·3	− 9·6	−15·9	− 9·2	−16·1	−10·0	−16·1	−10·1	−12·9	−10·0	− 9·8	−10·5	−10·2	−12·6	−18·1	−11·6	−13·9	− 4·3	−12·8	− 7·9	−15·3	− 9·2	−14·7	14
15	− 1·9	−14·2	0·3	−12·5	0·6	−12·1	0·6	−12·0	2·4	− 8·7	6·8	− 6·8	3·6	− 7·0	2·4	− 6·1	2·4	− 6·8	1·5	− 6·3	0·9	− 4·7	− 1·4	− 3·7	15
16	4·5	− 5·0	3·3	− 5·4	7·9	− 6·0	7·2	− 6·8	7·5	− 2·8	10·6	− 2·2	10·6	0·2	11·1	− 1·6	10·1	− 3·4	12·6	− 2·8	16·3	− 0·4	17·1	− 0·7	16
17	11·9	− 5·1	12·6	− 5·8	6·9	− 6·8	3·2	− 8·3	1·0	− 6·3	2·2	− 6·2	3·3	− 5·0	5·1	− 4·5	0·9	− 5·3	− 1·2	− 6·4	− 1·0	− 6·8	− 2·8	− 7·5	17
18	− 4·7	1·2	− 6·6	− 0·8	− 4·9	0	− 5·0	0·2	− 5·3	0·7	− 5·4	0·4	− 5·8	0·2	− 5·5	0·6	− 5·6	0·4	− 3·8	3·4	− 4·3	4·8	− 4·5	5·0	18
19	0·3	− 1·3	2·9	− 2·3	0·2	− 0·7	− 1·1	− 0·4	− 1·7	− 1·8	− 3·8	− 1·3	− 3·1	1·3	− 5·4	0·4	− 1·7	0·5	− 1·3	− 0·2	− 1·7	− 1·6	− 1·9	− 3·0	19
20	−10·2	− 2·8	−10·7	− 1·6	−12·6	− 1·1	−12·6	− 0·7	−10·9	− 0·1	−12·2	− 0·9	− 8·7	− 2·6	− 9·5	0·1	− 9·1	− 2·1	− 9·8	− 3·4	−10·1	− 4·6	− 8·4	− 3·5	20
21	− 9·2	− 8·1	− 8·9	− 4·6	− 9·5	− 3·9	− 9·7	− 3·9	− 9·7	− 3·3	−10·1	− 5·7	−11·0	− 5·2	−13·1	− 2·8	−12·8	− 3·7	−13·6	− 5·6	−13·1	− 7·0	−14·3	− 7·0	21
22	− 6·6	−11·1	− 5·6	−11·0	− 4·4	−14·0	− 2·9	−17·1	− 5·2	−16·7	− 0·8	−22·4	3·0	−14·5	2·6	−11·5	3·3	−11·3	0·7	−11·4	2·1	−12·2	2·8	−12·2	22
23	6·0	−19·4	1·7	−16·9	0·9	−14·0	0·3	−18·7	0·5	−18·5	− 0·7	−17·7	− 2·7	−16·0	− 6·4	−16·0	− 7·5	−15·8	− 8·7	−17·9	− 7·5	−15·7	− 8·2	−11·8	23
24	− 4·6	−18·9	− 5·5	−18·6	− 5·1	−18·0	− 6·2	−16·4	− 4·1	−16·1	− 4·7	−17·5	− 4·6	−18·2	− 2·3	−15·6	− 2·2	−14·4	− 4·6	−13·5	− 1·2	−13·1	− 3·7	−14·3	24
25	− 8·5	−17·5	− 6·2	−20·2	− 6·1	−21·4	− 6·3	−17·4	− 8·1	−16·6	− 6·9	−17·5	− 5·9	−17·2	− 4·0	−14·5	− 1·3	−11·2	− 1·5	− 9·1	− 3·2	−10·5	− 3·7	− 7·9	25
26	3·2	− 9·9	2·4	−11·1	2·6	−12·3	5·9	−11·1	4·5	− 8·4	5·2	− 7·2	6·5	− 5·0	7·5	− 1·9	6·1	− 3·4	5·6	− 1·5	4·7	− 3·8	4·4	− 2·9	26
27	− 3·3	− 3·8	− 3·8	− 3·4	− 2·6	− 3·7	1·0	− 2·8	0·9	− 1·5	− 1·1	0	− 2·4	0	− 1·3	− 0·2	− 2·0	− 0·8	− 1·7	− 0·4	− 0·5	− 0·2	− 0·4	− 0·9	27
28†	0	4·7	0·5	8·9	1·4	10·2	0·8	10·0	− 0·7	10·6	− 0·1	10·8	0·3	10·5	− 0·1	8·1	0·8	8·7	1·1	9·0	2·2	8·4	− 4·4	7·4	28
Means	− 4·01	− 9·05	− 3·85	− 9·14	− 3·28	−10·09	− 2·98	−10·09	− 2·73	− 9·04	− 2·28	− 9·51	− 2·22	− 8·66	− 1·91	− 8·24	− 2·14	− 8·74	− 2·64	− 8·21	− 2·59	− 8·06	− 3·26	− 7·94	Means.

* 1–8 h., four years.

† Two of the years to which this table refers were leap years, viz., 1864 and 1868. The data for Feb. 29 have been omitted entirely.

FEBRUARY.

Hours -	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	−11·9	−15·9	−10·2	−14·8	− 9·4	−10·6	− 8·6	− 9·5	− 9·5	− 8·6	− 9·1	− 9·2	−11·2	− 6·8	− 8·6	− 6·5	− 8·2	− 7·4	− 9·7	− 7·9	−10·4	− 7·1	−13·6	−10·6	1
2	−13·6	−13·4	−12·8	−12·9	−12·5	−11·8	−12·5	−11·6	−11·9	− 8·9	−10·5	−11·7	−11·7	− 9·2	− 8·8	−12·5	− 5·5	−11·5	− 6·8	− 7·2	− 1·7	−12·8	− 4·6	−17·1	2
3	− 4·2	− 4·4	− 2·5	− 4·5	− 3·6	− 5·6	− 6·1	− 6·8	− 7·2	− 6·2	− 7·8	− 4·8	− 8·8	− 3·8	− 8·7	− 5·4	− 3·3	− 4·9	− 4·6	− 5·3	− 2·6	− 6·2	− 5·9	−17·4	3
4	3·1	−13·0	0·4	−13·8	1·3	−13·9	− 0·4	−10·7	1·5	−10·2	3·2	−11·3	4·4	−12·0	4·6	− 8·7	2·6	− 7·6	− 1·2	− 9·2	− 3·8	−13·0	− 4·7	−15·3	4
5	− 8·0	−21·6	− 9·2	−27·2	−10·6	−25·4	− 7·6	−27·8	− 9·0	−21·2	− 9·3	−23·1	−10·6	−21·2	−10·9	−23·9	−11·5	−19·2	− 6·5	−18·3	− 3·9	−17·4	− 4·3	−14·8	5
6	− 4·3	− 9·9	− 4·6	− 8·9	− 4·3	− 9·5	− 3·5	− 1·4	− 6·3	− 3·3	− 6·3	− 6·1	− 6·6	− 4·4	− 5·0	− 5·9	− 6·3	− 7·4	− 8·7	− 5·3	−10·7	− 7·0	−10·5	− 7·5	6
7	0·1	−15·8	3·5	−12·0	2·3	−12·4	1·3	−10·4	0·2	−10·1	− 1·2	− 9·6	− 0·1	− 8·1	1·8	− 7·7	2·2	− 7·2	1·6	− 8·1	4·3	− 7·4	3·6	− 6·1	7
8	3·2	− 3·2	1·8	− 1·8	1·7	− 0·9	0·5	− 0·9	− 0·3	1·0	− 0·7	2·3	0·5	− 1·2	0·9	− 2·7	5·6	− 2·7	6·2	− 6·4	4·5	− 3·9	3·3	− 3·6	8
9	− 4·6	− 2·3	− 3·6	9·4	− 4·6	− 0·4	− 4·6	0·3	− 6·8	0·7	− 7·6	2·1	− 8·2	15·8	− 9·4	− 1·3	−10·8	− 2·1	−11·1	− 5·7	−12·6	− 2·6	−11·8	− 5·3	9
10	− 5·1	−12·4	− 3·1	−12·5	− 1·4	−11·6	− 1·8	−12·8	− 0·7	−10·4	− 1·6	−10·9	− 2·9	−11·7	− 2·8	−12·1	− 2·9	−13·0	− 4·7	−13·7	− 2·7	−10·6	− 4·8	− 9·2	10
11	− 3·8	−11·5	− 6·1	−10·2	− 5·4	−11·9	− 4·3	−15·1	− 2·8	−15·0	− 3·3	−15·1	− 4·7	−14·7	− 2·8	−17·0	− 3·6	−15·2	− 2·9	−14·4	− 3·9	−14·8	− 1·9	−14·5	11
12	0·4	−10·8	0·1	−10·1	− 0·3	−10·1	− 0·3	− 9·5	− 1·2	− 9·3	− 3·7	−10·2	− 3·5	−10·0	− 5·7	− 7·7	− 4·6	− 6·2	− 5·6	− 4·6	− 6·6	− 4·0	− 5·9	− 2·7	12
13	− 1·9	−10·5	− 2·7	−10·6	− 0·9	− 9·5	− 3·0	−10·2	− 4·0	− 8·7	− 9·7	− 4·1	− 8·7	− 6·9	− 8·3	− 5·4	− 9·0	− 6·1	− 8·9	− 8·0	−10·2	−10·1	−11·1	−15·1	13
14	−10·3	−14·8	− 9·2	−14·1	− 6·5	−14·5	− 6·8	−14·2	− 3·2	−14·2	− 4·5	−13·5	− 6·1	−12·7	− 8·4	−14·0	− 1·8	−13·8	− 1·8	−12·5	− 0·2	−13·8	− 2·5	−14·0	14
15	− 0·3	− 3·3	− 2·3	− 4·1	− 1·4	− 4·3	− 0·9	− 2·9	− 1·5	− 2·9	− 0·7	− 3·7	− 0·5	− 3·8	1·9	− 2·4	5·9	− 3·7	3·2	− 0·9	3·3	− 2·0	5·3	− 4·4	15
16	12·0	− 2·4	10·8	0·4	10·9	− 0·7	10·5	− 1·1	10·2	− 2·7	9·8	− 3·0	8·8	− 4·1	9·9	− 3·5	9·3	− 4·3	8·1	− 3·5	7·2	− 3·3	5·8	− 5·1	16
17	− 3·2	− 9·8	− 3·7	− 7·5	− 3·1	− 8·2	− 1·4	− 8·5	− 2·6	− 8·3	− 5·3	− 9·5	− 2·9	− 6·8	− 1·5	− 1·9	− 2·6	− 0·5	− 1·7	− 0·2	− 5·3	− 1·7	− 2·6	1·2	17
18	− 4·3	4·6	− 5·3	4·6	− 4·4	2·7	− 3·7	3·1	− 3·8	3·1	− 5·0	3·7	− 4·6	3·4	1·3	1·4	− 1·0	2·0	− 0·7	0·4	− 1·0	− 3·1	− 0·8	− 4·0	18
19	− 1·1	− 4·0	− 2·0	− 4·3	− 2·8	− 4·5	− 3·9	− 4·0	− 3·6	− 2·3	− 3·4	− 2·2	− 2·1	− 2·4	− 3·8	− 1·2	− 4·3	− 0·6	− 4·5	− 0·6	− 7·0	− 1·6	− 6·7	− 1·9	19
20	− 9·8	− 2·4	− 8·8	− 3·6	− 2·9	−10·9	− 2·3	− 8·6	− 3·3	− 9·8	− 4·9	− 9·5	− 6·1	− 8·4	− 7·9	− 7·5	−10·2	− 5·5	− 9·9	− 5·3	−11·3	− 6·0	− 9·7	− 6·6	20
21	−12·8	− 7·6	−11·9	− 8·1	− 8·6	− 7·5	− 4·7	−12·4	− 5·8	−12·8	− 3·7	−12·3	− 3·3	−11·2	− 4·6	−10·6	− 5·3	−10·6	− 8·0	−10·7	− 3·4	− 9·5	− 6·3	−10·1	21
22	0·7	−20·4	0·4	−20·8	0·4	−20·4	− 1·3	−17·9	− 1·7	−17·6	− 2·2	−16·0	− 3·3	−11·5	− 3·8	−10·8	− 5·3	−13·7	− 4·5	−11·6	− 3·3	−11·9	− 4·9	−16·7	22
23	− 7·2	−14·3	− 8·0	−14·3	− 5·3	−13·3	− 7·9	−13·8	− 5·3	−11·8	− 1·2	− 7·4	− 2·9	− 7·1	− 5·8	− 6·6	− 3·5	− 7·4	− 3·7	−10·8	− 6·9	− 9·4	− 7·0	−10·0	23
24	1·0	−14·8	− 3·5	−17·0	− 0·3	−15·6	− 0·9	−17·5	− 2·2	−16·1	− 0·7	−14·7	− 0·3	−15·4	− 0·1	−16·0	− 1·3	−16·8	− 1·6	−19·0	− 5·0	−15·3	− 6·0	−18·1	24
25	2·8	− 6·9	− 4·8	− 9·4	− 3·4	−10·1	− 6·1	− 9·3	− 3·9	− 7·5	− 5·8	− 7·6	− 6·7	− 5·7	− 6·3	− 6·8	− 5·8	− 7·2	− 4·9	− 8·8	− 2·8	−10·2	− 1·8	− 9·8	25
26	2·9	− 4·1	3·4	− 3·6	3·4	− 2·6	0·8	− 0·5	− 0·7	1·2	− 1·4	1·4	− 0·1	− 3·1	− 1·7	− 2·3	− 2·6	− 2·6	− 1·0	− 3·3	− 2·1	− 2·6	− 3·2	− 3·7	26
27	− 0·7	− 0·6	− 1·7	− 0·9	− 2·4	− 1·4	− 1·2	− 2·2	− 2·5	1·0	− 1·9	2·6	− 3·0	1·0	− 0·4	2·2	1·4	3·3	1·1	5·0	3·0	4·7	2·3	5·1	27
28	0·1	8·5	− 2·6	8·7	− 3·4	9·8	− 2·5	8·2	− 3·9	8·6	− 2·6	7·0	− 2·6	7·0	− 2·0	7·3	− 2·6	7·4	− 4·0	8·9	− 5·5	7·2	− 6·1	7·6	28
Means -	− 2·89	− 8·46	− 3·51	− 8·00	− 2·76	− 8·39	− 2·90	− 8·14	− 3·28	− 7·23	− 3·60	− 7·01	− 3·85	− 6·23	− 3·28	− 6·73	− 3·05	− 6·59	− 3·46	− 6·68	− 3·59	− 7·04	− 4·16	− 8·28	Means.

MARCH.

Hours	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 1·7	1·9	1·2	2·9	2·0	2·9	1·6	2·2	0·6	0·7	0·2	− 1·1	− 0·1	− 0·2	1·1	− 1·2	2·1	− 1·2	2·1	− 1·2	1·2	− 1·0	0·1	− 1·2	1
2	1·6	−11·3	− 1·7	− 9·8	1·4	− 8·9	3·6	− 7·6	4·1	− 6·8	0·9	− 6·4	− 0·9	− 4·9	− 1·0	− 3·6	0·1	− 1·8	− 3·6	− 2·3	− 4·4	− 2·0	− 4·0	− 2·2	2
3	− 3·2	2·7	− 2·2	0·4	− 3·3	− 4·3	− 4·4	− 3·9	− 0·4	− 0·9	1·2	0·6	1·4	2·1	0·2	1·6	0·1	− 0·1	− 3·4	− 2·5	− 4·5	− 2·1	− 4·2	− 4·9	3
4	− 7·5	3·0	− 9·4	6·3	− 8·2	6·7	− 5·7	0·9	− 4·9	2·5	0·5	2·6	− 9·6	4·4	− 8·3	− 7·0	− 8·9	− 9·2	− 8·4	− 7·7	− 7·4	−10·8	− 8·7	− 3·7	4
5	− 6·8	− 6·0	− 7·2	−11·2	− 6·4	−10·5	− 9·6	− 8·7	− 9·7	− 9·5	−11·5	− 3·0	− 8·7	− 1·5	− 8·0	− 2·3	−10·3	− 1·9	−10·3	− 1·3	− 9·0	− 2·3	− 7·4	− 2·0	5
6	− 2·7	0·7	− 1·0	1·8	− 0·3	4·5	− 1·9	3·1	0·2	6·6	2·8	6·5	3·3	5·5	2·6	5·5	1·7	6·2	2·2	6·6	2·5	7·5	1·4	6·4	6
7	1·9	5·4	1·9	6·2	1·8	5·6	− 1·3	6·8	0·4	6·2	1·1	6·3	1·5	1·7	1·8	2·2	− 0·9	0·8	− 1·7	− 3·0	− 2·6	4·4	− 3·4	2·8	7
8	2·6	2·6	2·8	1·3	3·1	1·8	4·7	3·2	7·6	3·7	7·2	1·3	7·1	1·1	8·0	1·5	6·2	0·1	7·3	1·7	5·2	2·0	5·2	2·3	8
9	1·4	2·8	1·7	1·9	0·9	2·5	− 0·5	3·6	− 0·9	3·0	− 1·6	2·4	− 0·9	2·4	− 2·4	0·8	− 3·4	1·3	− 2·5	1·0	− 3·6	1·0	− 5·0	2·2	9
10	− 2·6	1·6	− 4·5	1·7	− 2·9	0·8	− 2·4	− 0·1	− 2·0	− 1·5	− 2·4	− 0·1	− 1·3	− 0·7	− 2·7	1·0	− 0·9	− 0·1	− 2·1	0·8	− 2·7	0·4	− 3·0	1·4	10
11	− 6·3	− 0·4	− 6·5	0·9	− 6·9	0·8	− 6·4	2·5	− 7·3	1·0	− 4·5	3·5	4·0	0·6	5·0	− 0·4	5·2	− 1·3	4·2	− 2·3	5·3	− 3·4	3·8	− 3·2	11
12	2·2	− 3·2	− 0·8	− 3·7	1·2	− 4·1	− 1·8	9·5	2·0	0·5	4·7	1·9	7·0	1·5	5·8	1·0	4·8	1·3	2·5	1·1	2·0	2·2	2·5	1·8	12
13	− 4·1	6·0	− 3·6	2·7	− 4·1	3·9	− 5·4	2·0	− 5·6	1·2	− 6·6	− 1·1	− 5·6	0·4	− 7·8	− 2·9	− 6·4	− 1·4	− 8·6	0·3	− 8·9	− 2·1	− 0·4	− 4·6	13
14	− 5·2	3·8	− 5·6	5·1	− 5·8	5·3	− 7·2	6·3	− 7·6	5·1	− 4·3	5·3	− 8·1	5·7	− 5·9	4·0	− 6·0	4·0	− 6·6	3·9	− 3·3	4·2	− 2·9	5·1	14
15	2·4	4·0	1·5	5·4	0·4	1·0	− 8·6	0·8	1·9	2·4	3·6	0·2	3·9	2·3	3·3	2·1	0·8	3·4	0	2·4	− 0·2	5·6	− 1·8	6·0	15
16	− 5·8	− 1·1	− 8·7	2·4	− 4·5	0·8	1·4	− 2·3	− 6·0	− 0·1	− 4·9	1·4	− 3·8	3·7	− 4·4	2·3	− 4·1	2·7	− 5·3	2·6	− 4·3	2·0	− 3·1	2·1	16
17	− 4·2	5·8	− 2·7	5·8	− 2·4	3·4	− 3·3	3·8	− 3·7	− 5·0	− 3·2	2·1	− 4·5	1·7	− 4·4	0·3	− 3·1	− 0·6	− 3·7	0·1	− 5·2	1·3	− 4·5	2·0	17
18	− 7·5	8·6	− 8·5	8·4	− 7·8	7·4	− 6·7	8·9	− 6·9	10·0	− 6·3	9·9	− 5·5	9·2	− 5·6	9·8	− 7·3	10·4	− 7·0	11·0	− 6·8	10·7	− 6·2	10·8	18
19	− 4·3	3·7	− 4·7	3·4	− 4·6	5·2	− 4·4	5·6	− 4·0	5·9	− 4·6	7·1	− 4·2	6·7	− 5·8	6·9	− 6·9	8·1	− 7·6	7·4	− 7·9	8·3	− 8·4	7·9	19
20	− 2·6	1·1	− 3·6	0·1	− 0·9	− 0·2	1·8	0	3·4	− 0·2	2·5	− 2·1	1·6	− 3·2	0·7	− 3·3	0·8	− 4·2	2·0	− 5·0	2·1	− 4·4	1·4	− 6·2	20
21	0·9	− 5·1	− 0·7	− 3·6	− 1·2	− 2·3	0·4	− 5·1	0·7	− 6·0	0	3·1	− 2·2	− 5·5	− 4·0	− 5·7	1·5	− 4·7	1·5	− 4·4	0·9	− 4·4	0·1	− 2·6	21
22	− 1·8	− 3·4	− 0·8	− 3·1	− 0·4	− 1·6	− 1·0	− 0·8	− 1·3	− 3·2	− 2·4	− 4·7	− 1·6	− 4·8	− 0·2	− 1·6	− 2·0	1·4	− 0·7	2·4	− 2·7	0·3	− 4·3	− 0·6	22
23	6·3	3·1	3·1	3·8	2·4	1·5	2·0	0·1	1·9	3·1	1·0	2·0	− 0·8	2·4	1·7	4·9	1·4	4·3	− 0·4	3·0	6·0	0·6	6·3	3·2	23
24	− 3·8	1·1	− 3·5	1·1	− 4·7	− 1·6	− 3·8	− 2·2	− 4·2	− 1·4	− 4·2	− 0·9	− 5·1	− 1·0	− 4·2	1·1	− 5·9	1·2	− 5·8	− 0·7	− 6·2	− 0·1	− 6·3	0·8	24
25	−10·9	1·3	−11·6	0·6	−11·1	− 0·9	− 7·0	0·8	−12·0	0·5	− 7·5	− 2·3	− 7·5	− 0·7	− 6·7	− 1·8	− 6·9	− 2·1	− 7·4	− 2·7	− 3·2	3·7	0	5·8	25*
26	5·9	− 3·7	5·8	− 3·1	8·3	− 5·2	8·1	− 4·6	6·5	− 6·7	9·4	− 4·2	8·1	− 3·9	7·1	− 6·4	4·8	− 7·2	3·8	− 5·6	4·1	− 8·6	3·1	− 9·4	26
27	− 5·2	− 9·3	− 5·3	−10·2	− 2·5	−14·0	− 0·8	−11·8	− 0·9	−11·3	− 0·1	−11·7	1·1	−11·5	− 0·9	−10·9	− 4·4	−11·2	− 6·7	− 9·5	− 5·9	− 8·7	− 1·9	− 8·1	27
28	− 2·0	− 9·2	− 1·4	− 8·5	− 0·9	−10·6	− 0·6	− 9·5	− 1·1	− 7·4	− 2·0	− 6·3	− 0·7	− 7·6	− 2·0	− 7·3	− 2·4	− 6·5	− 2·7	− 8·2	− 0·5	− 7·2	0·3	− 6·5	28
29	4·0	− 8·5	5·3	− 7·2	4·0	− 8·5	2·0	− 8·4	0·1	− 8·7	0·8	− 9·7	2·5	− 9·4	2·2	− 9·2	0·8	− 9·4	1·2	− 8·4	0·3	− 9·7	− 0·5	− 9·3	29
30	− 3·3	−12·6	0	− 9·9	0·7	−11·5	2·5	−11·7	2·7	−10·2	1·5	− 8·5	3·6	− 6·5	1·6	− 6·9	1·6	− 5·5	− 0·5	− 6·3	− 3·4	− 8·3	− 4·7	− 9·0	30
31	− 8·6	−11·3	− 7·5	−12·8	− 5·8	−12·7	− 5·5	−10·9	− 3·5	− 8·7	− 4·6	− 9·3	− 4·2	− 7·4	− 3·8	− 7·3	− 4·9	− 7·1	− 5·9	− 7·1	− 4·8	− 2·1	− 4·0	− 9·3	31
Means	− 2·29	− 0·84	− 2·52	− 0·67	− 1·89	− 1·38	− 1·94	− 0·89	− 1·73	− 1·14	− 1·07	− 0·49	− 0·97	− 0·50	− 1·19	− 1·05	− 1·70	− 0·98	− 2·39	− 1·09	− 2·20	− 0·74	− 2·11	− 0·72	Means.

* 10-11 h., four years only.

MARCH.

Hours	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	1·1	− 1·7	0·5	− 3·5	0·0	− 3·1	0·6	− 3·5	0·1	− 3·9	− 0·4	− 3·0	− 0·6	− 4·0	− 0·9	− 4·7	− 0·8	− 7·5	− 1·4	− 8·0	0·1	−11·8	0·7	−11·1	1
2	− 4·5	− 2·9	− 5·6	− 4·8	− 5·6	− 6·0	− 4·5	− 6·1	− 3·9	− 5·8	− 2·6	− 2·5	− 1·4	− 0·9	− 2·1	− 1·8	− 1·9	− 0·2	− 3·8	1·3	− 3·0	2·4	− 4·4	3·7	2
3	− 3·9	− 6·2	− 1·2	− 6·1	− 2·4	− 6·9	− 2·2	− 8·6	− 2·0	− 6·1	− 1·5	− 6·0	− 0·6	− 4·8	− 1·2	− 3·9	− 2·4	− 2·3	− 3·4	0	− 4·3	0·2	− 5·6	1·1	3
4	− 8·3	−10·0	− 9·3	−10·3	− 9·0	− 8·9	− 8·4	− 9·5	− 7·9	− 9·0	− 7·2	− 7·8	− 6·5	− 7·9	− 7·3	− 7·4	− 7·8	− 5·8	− 9·3	− 5·0	− 7·2	− 6·0	− 9·0	− 5·4	4
5	− 6·9	− 0·5	− 5·9	− 0·1	− 6·7	1·2	− 4·7	0·6	− 3·8	− 0·5	− 2·4	0·8	− 3·7	− 1·5	− 4·9	− 0·7	− 0·8	− 1·7	− 1·0	− 0·7	− 0·8	− 1·2	− 0·6	− 0·2	5
6	1·7	7·7	0·5	8·1	− 1·3	6·4	0·8	5·6	0·5	6·6	1·6	0·4	1·4	− 3·1	1·2	− 0·6	1·7	− 1·7	1·1	− 1·2	2·9	− 4·0	− 4·6	3·0	6
7	− 1·5	− 5·4	2·4	− 5·8	2·1	− 5·4	3·9	− 3·2	3·5	− 2·6	3·6	− 1·5	3·2	− 2·4	5·4	− 1·7	6·9	− 1·4	6·6	0·7	5·2	1·2	4·5	1·4	7
8	3·9	1·8	3·0	1·1	3·9	2·1	3·7	2·9	5·0	3·0	5·8	3·7	5·6	3·7	12·8	3·1	1·5	4·3	1·7	4·7	1·3	4·4	0·4	4·8	8
9	− 6·7	4·3	− 5·0	3·2	− 6·1	2·8	− 7·8	2·0	− 6·8	2·0	− 6·1	0·6	− 7·0	0·3	− 6·2	− 1·6	− 5·8	− 0·7	− 7·5	− 1·1	− 6·8	− 1·5	− 3·4	0·4	9
10	− 3·1	2·4	− 4·0	0·5	− 4·4	0·4	− 6·6	− 4·4	− 7·2	− 4·1	− 8·4	− 5·6	− 4·1	− 3·3	− 4·2	− 7·5	− 5·3	− 2·9	−10·5	− 4·0	− 9·8	− 1·4	− 9·0	− 3·6	10
11	6·2	− 2·0	5·5	− 6·1	5·9	− 5·9	6·5	4·0	5·6	− 4·9	6·2	− 3·8	5·2	− 2·7	5·1	− 3·6	7·2	− 1·4	5·8	− 1·4	3·2	− 0·3	2·4	− 1·9	11
12	2·1	1·4	3·0	1·4	− 1·5	3·1	− 3·5	4·6	− 1·5	5·2	− 1·4	4·8	− 1·3	4·8	− 0·7	3·8	− 0·9	7·0	− 3·5	9·2	− 3·8	8·5	− 2·8	7·0	12
13	−12·2	− 2·7	− 7·5	− 1·8	− 5·7	− 6·5	− 7·5	− 4·6	− 3·0	− 3·1	2·2	− 0·4	0	0·7	− 0·8	1·6	− 0·7	1·4	− 2·9	− 0·3	− 5·7	2·6	− 4·8	4·3	13
14	0	5·3	− 0·5	4·5	− 1·5	5·5	− 0·7	5·6	− 0·8	4·6	− 0·1	1·4	− 2·0	2·1	− 3·2	5·5	− 4·6	3·0	− 3·2	3·2	− 4·8	4·2	− 9·0	3·2	14
15	− 1·4	5·7	− 2·5	5·4	− 3·9	− 0·9	− 4·0	8·0	− 3·4	8·4	− 4·8	10·2	− 4·1	9·6	− 6·1	8·7	− 7·0	8·7	− 7·6	9·1	− 9·4	6·7	− 6·5	0·8	15
16	− 7·0	1·0	− 6·4	2·0	− 5·8	0·8	− 6·2	0·4	− 6·0	1·3	− 4·6	− 0·4	− 5·6	0	− 1·4	− 0·7	− 1·7	− 0·9	− 0·3	− 0·3	1·5	0·6	− 4·2	4·7	16
17	− 5·5	2·7	− 6·1	2·4	− 7·3	2·9	− 7·8	2·8	− 6·4	2·1	− 5·2	0·6	− 4·9	2·3	− 6·0	3·8	− 7·1	4·4	− 7·7	4·9	− 7·7	6·6	− 7·2	− 5·9	17
18	− 7·0	9·8	− 7·2	5·8	− 6·8	3·2	− 6·3	4·5	− 6·0	3·8	− 6·7	4·0	− 6·8	3·4	− 6·7	3·0	− 7·6	3·4	− 6·4	3·7	− 3·4	2·8	− 3·8	4·0	18
19	− 8·1	11·1	− 4·5	8·7	− 5·6	6·2	− 6·2	7·9	− 6·4	7·5	− 5·3	2·1	− 4·8	1·1	− 2·9	0·6	− 4·7	0·5	− 7·1	2·4	− 5·7	1·3	− 4·2	1·1	19
20	0·8	− 7·8	1·0	− 5·7	1·3	− 7·5	3·5	− 5·9	4·1	− 5·5	2·0	− 4·4	2·0	− 4·6	0·1	− 6·0	1·4	− 2·8	1·0	− 2·7	3·5	− 3·0	− 0·5	− 3·9	20
21	0·4	− 4·4	0·2	− 3·1	− 0·8	− 3·6	− 2·5	− 2·6	− 0·7	− 2·5	0·9	− 3·3	− 0·3	− 5·3	0·5	− 7·7	0·5	− 8·0	0·3	− 4·7	− 3·9	− 5·5	− 3·7	− 3·8	21
22	− 4·7	− 4·2	− 4·8	− 2·0	− 5·1	− 2·0	− 3·1	− 3·9	− 5·5	− 4·2	− 4·7	− 4·0	− 0·1	− 3·2	2·0	− 3·4	0	− 2·2	1·0	− 2·8	4·5	− 0·1	5·1	0·9	22
23	7·1	2·0	4·7	− 0·1	2·4	1·7	1·8	0·2	3·5	1·0	2·0	0·2	1·1	− 0·7	0·3	− 1·5	0·4	− 2·5	− 1·4	− 2·9	− 1·6	1·4	− 2·5	1·0	23
24	− 6·3	1·0	− 3·2	0·8	− 5·6	1·0	− 6·4	1·1	− 7·1	1·5	− 5·8	− 1·4	− 6·8	− 2·0	− 6·8	− 0·7	− 8·0	− 0·4	−10·6	0·2	−10·2	6·1	−11·9	0·5	24
25	− 1·6	7·2	− 1·6	4·7	− 0·4	4·4	− 3·1	4·9	− 1·1	6·4	1·8	4·5	7·5	8·9	5·4	10·4	5·1	12·7	8·1	1·2	8·0	− 0·6	6·4	− 6·1	25*
26	1·1	−12·0	2·3	−12·2	0·5	−11·8	1·2	−11·1	0·7	−12·1	1·1	−10·7	− 1·4	−11·3	− 0·7	−10·1	− 1·4	−11·4	− 2·6	−10·2	− 2·8	− 7·9	− 4·9	− 9·8	26
27	− 3·2	− 8·1	− 2·6	− 8·5	− 0·8	−10·3	− 0·4	− 8·6	1·1	− 7·8	4·1	− 6·8	4·3	− 5·8	2·7	− 5·6	0·5	− 6·4	− 1·4	− 5·0	− 0·3	− 4·8	− 1·2	− 8·6	27
28	2·1	− 6·4	4·4	− 5·5	3·9	− 5·0	4·2	− 5·6	3·8	− 5·5	4·1	− 4·5	4·6	− 5·6	2·8	− 4·5	3·5	− 4·9	4·3	− 5·4	4·0	− 6·9	5·3	− 8·0	28
29	− 0·9	−10·5	− 2·2	−11·6	− 2·7	−11·4	− 6·2	−11·0	− 4·6	−12·6	− 4·6	−13·9	− 1·8	−13·7	− 0·7	−12·3	− 1·8	−12·4	− 3·6	−10·3	− 4·4	−11·4	− 3·4	−12·0	29
30	− 5·1	− 7·6	− 4·9	− 6·2	− 5·3	− 5·6	− 4·6	− 5·3	− 5·3	− 5·5	− 5·9	− 7·4	− 6·9	− 9·2	− 8·0	− 9·4	− 7·5	−10·0	− 9·3	−10·6	− 8·6	−10·2	− 8·9	−10·6	30
31	− 4·4	− 9·8	− 4·2	− 6·2	− 4·2	− 6·7	− 3·8	− 5·8	− 3·7	− 6·3	− 4·4	− 6·7	− 4·1	− 8·7	− 4·6	− 7·6	− 2·5	− 4·0	− 4·4	− 4·9	− 7·3	− 3·5	− 9·4	− 5·8	31
Means	− 2·44	− 1·25	− 1·99	− 1·65	− 2·47	− 2·12	− 2·59	− 1·44	− 2·10	− 1·57	− 1·58	− 1·96	− 1·29	− 2·06	− 1·52	− 2·02	− 1·66	− 1·49	− 2·55	− 1·33	− 2·48	− 1·03	− 3·25	− 1·77	Means.

* 12–20 h, four years only.

APRIL.

Hours -	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 7·1	− 9·8	− 6·4	− 8·4	− 5·4	− 7·8	− 4·0	− 4·8	− 3·1	− 4·2	− 2·8	− 4·3	− 2·1	− 5·1	− 3·7	− 6·2	− 4·1	− 5·5	− 4·2	− 2·5	− 4·2	− 2·7	− 3·9	− 1·6	1
2	− 0·6	−11·0	0·3	−11·6	− 1·7	−11·0	− 1·7	− 8·2	2·5	−10·5	2·9	− 9·5	2·8	− 7·7	2·5	− 8·2	3·4	− 8·9	2·0	−10·4	−10·3	−11·2	1·5	− 9·1	2
3	− 5·5	− 7·8	− 4·7	− 6·9	− 4·4	− 8·3	− 2·4	− 5·2	− 5·0	− 4·1	− 5·2	− 5·2	6·4	− 2·3	− 6·7	− 1·7	− 8·1	− 4·1	− 7·7	− 7·0	−10·0	− 7·1	− 8·8	− 6·8	3
4	− 3·6	− 3·2	− 2·5	− 5·2	0·3	− 6·5	− 0·1	− 3·8	− 1·7	− 5·6	− 3·1	− 5·2	− 3·6	− 6·7	− 3·0	− 5·2	− 3·4	− 5·5	− 3·7	− 3·4	− 5·2	− 2·6	− 4·3	− 2·7	4
5	− 7·7	− 2·8	− 6·5	− 0·5	− 6·6	− 3·3	− 5·7	− 2·1	− 6·3	− 3·8	− 7·4	− 4·7	− 8·8	− 5·2	− 8·5	− 3·9	−10·5	− 1·8	−11·7	− 2·8	−12·8	− 4·6	−11·7	− 6·7	5
6	− 2·5	0·1	− 3·2	0·8	− 2·5	0·8	− 2·6	− 0·3	− 2·4	1·0	− 3·8	0·6	− 4·0	0·6	− 5·0	0·8	− 0·6	1·7	− 6·1	2·7	− 5·6	3·7	− 6·6	2·4	6
7	− 8·7	0·6	− 5·4	1·8	− 6·6	0·8	− 5·7	1·3	− 4·3	1·3	− 3·8	2·7	− 4·3	4·0	− 5·1	3·7	− 4·5	4·7	− 4·9	4·7	− 4·7	2·9	− 3·3	3·4	7
8	− 0·4	− 7·8	0·7	− 7·7	0·2	− 4·3	0·5	− 2·8	− 0·5	− 6·7	− 0·3	− 6·8	0·1	− 3·5	− 2·9	− 3·5	− 2·2	− 4·1	− 2·3	− 3·6	− 2·0	− 4·2	− 1·8	− 4·5	8
9	2·3	− 4·4	1·5	− 4·9	1·1	− 4·0	1·5	− 3·2	− 0·4	− 2·7	− 0·3	− 1·8	− 0·6	− 1·3	− 2·0	− 1·3	− 2·9	− 2·0	− 6·3	− 2·9	− 4·5	− 2·8	− 5·3	− 3·0	9
10	− 3·3	− 2·5	− 3·0	− 0·8	− 3·2	− 2·0	− 3·4	0·6	− 4·8	0·4	− 4·3	0·9	− 5·3	0	− 5·0	− 2·2	− 5·0	− 1·1	− 2·6	0·3	− 1·5	2·5	− 1·7	1·3	10
11	− 7·6	4·1	− 7·6	2·2	− 6·5	− 1·4	− 5·1	− 0·8	− 3·7	0·9	− 3·0	− 0·3	− 2·5	− 0·3	− 3·1	0·4	− 1·7	0·4	− 3·3	0·2	− 2·8	− 0·1	− 2·0	− 0·2	11
12	− 3·9	6·3	− 4·3	7·0	− 5·4	6·5	− 6·0	7·7	− 7·2	10·0	− 7·5	9·8	− 7·8	10·9	− 9·1	12·7	−10·3	13·5	−10·3	14·2	− 9·6	12·5	− 9·4	12·3	12
13	− 9·8	4·3	− 9·5	5·1	−10·8	5·5	− 8·9	6·3	− 5·4	6·7	− 3·2	5·8	− 7·7	5·2	− 6·6	6·4	− 8·9	8·1	− 9·1	7·2	− 7·5	5·5	− 6·3	5·9	13
14	− 9·7	3·6	−11·1	1·7	−11·8	0·3	−10·7	0·5	−10·0	− 0·1	− 8·5	− 0·3	− 7·6	− 0·9	− 4·9	0·2	− 4·7	0·1	− 4·8	− 0·4	− 4·4	− 1·5	− 4·3	0·2	14
15	−10·8	− 6·6	− 8·3	− 7·4	−12·4	− 8·0	−12·3	− 7·8	− 9·5	− 7·7	− 9·9	− 8·5	− 7·5	− 7·1	− 7·8	− 4·9	− 7·3	− 4·8	− 7·5	− 5·3	− 7·9	− 4·7	− 7·7	− 5·3	15
16	−10·2	− 5·7	−10·9	− 7·2	− 9·3	− 8·2	− 9·0	− 9·4	− 6·2	− 9·1	− 7·3	− 7·6	− 5·4	− 7·7	− 5·9	− 7·3	− 6·4	− 7·5	− 7·8	− 6·8	− 6·9	− 9·2	− 7·5	−10·7	16
17	2·7	−10·1	4·6	− 8·3	5·5	− 9·5	3·3	− 8·9	3·2	− 7·6	1·6	− 7·9	− 0·3	− 8·5	2·3	− 5·4	− 0·2	− 3·1	− 0·2	− 3·5	1·1	− 5·1	0·9	− 6·1	17
18	1·3	− 6·2	0·2	− 5·3	− 1·4	− 5·0	− 2·3	− 3·5	− 1·3	− 1·5	− 2·4	0·3	− 2·6	0·5	− 5·3	0·8	− 3·2	2·0	− 4·0	4·4	− 4·7	4·8	− 5·5	6·1	18
19	−14·1	11·8	−15·4	9·7	−16·9	8·2	−17·2	7·3	−16·4	8·8	−15·5	8·0	−14·7	8·0	−15·3	8·2	−15·2	10·6	−14·4	8·5	−13·7	8·3	−12·6	7·3	19
20	− 6·7	1·2	− 6·3	1·6	− 5·3	3·0	− 4·8	0·2	− 4·9	− 0·5	− 5·9	− 1·9	− 4·7	− 1·2	− 4·9	− 0·3	− 4·1	1·3	− 3·2	3·1	− 3·3	2·9	− 5·1	0·9	20
21	− 5·1	1·6	− 2·8	4·6	− 2·7	5·3	− 2·0	6·1	− 2·7	7·4	− 3·8	4·3	− 3·7	0·5	− 2·3	− 0·3	− 3·3	− 0·8	− 3·9	− 0·5	− 3·5	− 2·0	− 4·1	− 2·1	21
22	− 1·2	− 2·6	− 1·4	− 1·8	− 2·6	− 3·3	− 2·5	− 2·7	− 1·8	− 1·4	− 2·2	0·5	− 1·7	− 2·0	− 0·7	2·9	− 1·5	3·8	− 1·1	5·6	− 2·9	5·3	− 3·5	5·5	22
23	− 4·5	4·4	− 5·9	2·6	− 6·5	1·2	− 5·7	2·3	− 5·9	2·5	− 3·6	3·1	− 3·9	2·0	− 2·5	1·7	− 2·4	0·1	− 2·9	0·8	− 2·9	1·9	− 1·9	2·3	23
24	0·8	10·1	1·3	10·1	1·4	10·6	1·7	10·4	2·2	9·4	− 0·9	10·0	− 1·7	11·0	− 1·2	9·7	− 2·6	8·1	− 2·1	4·5	− 0·7	− 0·5	− 0·8	− 1·5	24
25	0·1	− 6·9	− 1·9	− 5·2	− 2·4	− 5·5	− 1·2	− 4·2	− 1·0	− 5·1	− 3·4	− 4·1	− 4·5	− 3·7	− 6·6	− 2·1	− 7·7	− 2·6	− 7·0	− 2·9	− 6·4	− 3·6	− 7·1	− 3·5	25
26	− 8·1	4·5	− 7·4	4·7	− 6·8	2·8	− 7·1	3·1	− 6·8	2·4	− 7·8	3·5	− 6·8	3·0	− 6·5	3·5	− 6·6	4·0	− 7·6	0·6	− 7·3	0·8	− 8·0	0	26
27	0·1	8·1	1·8	4·5	3·7	7·6	3·8	8·3	4·6	9·2	4·3	8·9	4·3	8·2	2·7	6·7	4·4	2·4	2·4	8·6	3·2	2·6	4·3	3·9	27
28	16·1	1·8	15·9	1·0	15·3	0·1	12·1	2·6	12·8	4·9	13·1	4·2	11·3	4·9	9·0	3·9	6·0	5·2	7·3	0·2	6·8	1·3	5·7	− 0·9	28
29	2·2	− 4·1	4·8	− 6·1	3·0	− 9·1	7·9	− 9·7	5·3	− 9·7	6·3	− 9·2	2·8	− 5·5	3·0	− 6·6	0·2	− 4·3	3·7	− 2·0	− 1·0	− 1·4	− 1·3	− 1·3	29
30	− 0·8	− 0·5	− 1·1	− 1·4	− 1·4	− 0·6	− 2·8	0·1	− 2·2	− 1·8	− 3·1	− 0·4	− 2·5	0·3	− 3·1	1·6	− 3·6	2·1	− 4·3	2·4	− 4·7	4·5	− 4·0	1·7	30
Means -	− 3·54	− 1·15	− 3·15	− 1·04	− 3·40	− 1·50	− 3·08	− 0·69	− 2·76	− 0·57	− 3·01	− 0·50	− 2·87	− 0·32	− 3·61	0·14	− 3·90	0·40	− 4·25	0·47	− 4·66	0·13	− 4·20	− 0·43	Means.

APRIL.

Hours	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 2·1	− 2·9	0·7	− 0·4	2·6	− 1·2	2·6	− 1·1	1·4	− 1·7	2·4	− 2·5	2·1	− 2·2	1·0	− 0·4	0·1	− 1·6	1·5	− 1·5	− 1·3	− 2·1	− 0·6	− 7·5	1
2	0·9	− 7·4	0·3	− 8·3	1·4	− 6·5	1·3	− 6·4	0·6	− 5·7	− 2·3	− 6·5	− 2·5	− 6·1	− 3·3	− 5·2	− 3·7	− 4·1	− 5·2	− 4·4	− 6·6	− 6·2	− 6·5	− 9·0	2
3	− 8·1	− 7 9	− 7·8	− 7·5	− 7·9	−10·0	− 7·2	− 8·5	− 7·3	− 7·2	− 8·9	−10·6	− 5·0	−13·9	− 3·0	− 7·4	− 2·9	− 2·3	− 3·5	− 1·0	− 3·7	− 2·7	− 2·7	− 3·6	3
4	− 7·3	− 1·0	− 7·3	0·7	− 7·8	1·6	− 7·3	− 1·2	− 3·6	− 2·4	− 2·8	− 0·1	− 3·0	− 0·6	− 1·7	− 0·7	− 2·9	− 0·6	− 1·9	− 2·0	− 3·1	− 1·8	− 4·4	− 1·3	4
5	−12·7	− 7·1	−12·9	− 6·6	−10·8	− 7·5	− 8·2	− 6·1	− 5·2	− 6·2	− 5·2	− 6·8	− 3·0	− 6·4	− 2·2	− 2·6	− 3·1	0·8	− 4·7	0·9	− 2·8	− 0·5	− 4·1	− 0·5	5
6	− 8·4	2·5	− 7·9	0·1	− 9·7	− 0·3	− 7·4	− 0·5	− 6·7	0·5	− 6·7	1·6	− 7·4	0·2	− 7·6	0·7	− 8·0	0·2	− 8·6	0·2	− 8·1	1·7	− 7·0	1·3	6
7	− 2·9	2·3	− 4·0	1·9	− 3·8	− 0·9	− 2·3	− 0·4	− 2·3	− 0·7	3 ·6	− 3·9	− 2·1	− 7·4	− 0·8	− 9·4	0·6	− 6·9	0·8	− 9·4	1·7	− 8·2	0·1	− 7·2	7
8	0·3	− 3·5	− 0·4	− 5·0	− 0·8	− 4·0	− 0·6	− 3·9	− 0·5	− 4·0	− 0·3	− 3·1	0·1	− 4·3	− 1·3	− 6·0	− 0·4	− 5·1	1·2	− 0·2	0·7	− 1·3	1·2	− 2·8	8
9	− 6·3	− 3·6	− 6·4	− 5·5	− 4·8	− 4·7	− 4·7	− 3·7	− 2·7	− 3·4	− 2·8	− 3·7	− 2·9	− 3·1	− 5·0	− 1·1	− 7·2	− 0·6	− 8·1	− 0·9	− 6·1	0·3	− 5·4	− 0·3	9
10	− 0·9	1·3	− 0·8	0·5	0	3·8	− 0·1	1·9	0·7	3·6	− 1·8	3·1	− 2·4	2·1	− 4·9	5·8	− 3·9	5·9	− 3·9	5·4	− 5·9	6·8	− 5·5	6·0	10
11	− 3·0	0·6	− 2·4	− 1·1	− 1·8	− 1·6	− 0·8	− 2·5	0	− 1·1	0·4	− 0·8	3·8	0·5	− 0·5	4·3	− 4·4	4·6	− 1·9	4·5	− 7·7	2·0	− 7·3	2·3	11
12	− 8·7	11·8	− 6·7	10·6	− 6·8	8·0	− 7·0	6·0	− 6·2	5·0	− 6·9	5·1	− 9·6	4·2	− 9·7	4·1	−11·7	4·3	−12·0	3·4	−10·4	5·2	−10·8	5·6	12
13	− 8·5	7·1	− 8·2	6·7	− 7·5	4·9	− 7·1	5·3	− 6·7	6·4	− 7·6	4·8	− 8·2	4·8	− 8·4	7·2	− 7·5	7·1	− 9·3	7·6	−10·0	6·8	− 8·9	6·1	13
14	− 5·8	− 0·3	− 5·5	− 3·0	− 6·7	− 3·8	− 5·8	− 5·2	− 6·4	− 5·0	− 5·7	− 3·0	− 6·6	− 2·3	− 7·4	− 3·6	−10·7	− 3·2	− 9·2	− 5·3	−10·5	− 7·0	− 9·6	− 6·9	14
15	−10·0	− 5·7	− 7·9	− 6·8	−10·1	− 6·6	− 9·8	− 5·9	− 8·9	− 7·1	−12·2	− 8·7	−10·8	− 9·7	− 8·9	− 9·9	− 9·4	− 8·6	−10·3	− 7·5	−11·7	− 8·0	−12·2	− 6·5	15
16	− 6·2	−10·1	− 7·4	−10·8	− 7·2	−10·5	− 4·7	−11·9	− 3·6	−12·4	− 3·5	−11·4	− 0·3	−12·5	− 1·8	−12·1	− 1·0	− 9·6	− 0·3	−10·2	1·9	− 9·9	2·9	−10·2	16
17	1·3	− 1·8	1·0	− 6·7	− 0·8	− 5·8	− 1·7	− 8·1	0·4	− 7·8	1·1	− 7·4	2·3	− 9·7	1·2	− 7·3	− 0·2	− 7·2	1·2	− 5·7	− 0·3	− 6·2	− 1·2	− 5·8	17
18	− 5·9	5·5	− 4·2	7·4	− 5·7	7·6	− 6·2	10·5	− 6·3	10·9	− 7·8	12·2	− 9·9	13·7	− 9·9	13·7	−11·7	15·2	−13·1	15·2	−14·8	9·4	−13·7	11·5	18
19	−12·7	8·9	−12·9	7·1	−13·0	4·6	−12·5	3·7	− 9·9	3·0	− 9·4	1·6	− 9·9	2·9	−11·3	4·1	−10·8	3·9	−11·2	2·0	− 8·2	2·4	− 6·4	2·5	19
20	− 5·1	1·3	− 3·0	0·8	− 0·6	0·6	1·0	1·0	0·2	1·1	1·2	0·5	0·5	− 0·9	− 0·6	− 0·1	− 1·2	0·8	− 1·6	1·9	− 4·9	2·7	− 6·2	4·9	20
21	− 5·5	− 1·6	− 4·4	− 1·4	− 5·4	− 1·2	− 6·9	− 1·3	− 3·7	− 2·0	− 0·6	− 2·4	− 0·6	− 2·1	0·5	− 1·9	− 2·2	− 3·8	− 3·3	− 4·0	− 1·4	− 3·9	− 0·9	− 3·1	21
22	− 3·1	5·8	− 3·0	4·2	− 3·0	4·8	− 3·8	5·2	− 3·9	5·7	− 4·4	6·5	− 5·4	6·6	− 6·5	6·5	− 7·6	7·1	− 7·7	6·8	− 5·5	3·8	− 6·4	3·5	22
23	− 2·0	2·9	− 1·7	1·4	− 1·6	1·9	0·1	4·1	0·8	2·3	2·4	2·8	2·0	4·3	1·6	6·9	3·4	7·1	1·5	9·1	3·0	9·0	3·0	9·4	23
24	− 1·4	− 2·6	− 0·3	− 1·4	− 1·9	− 2·4	− 2·4	− 1·9	− 2·1	− 3·5	− 0·7	− 4·8	− 0·8	− 3·0	0·2	− 4·5	2·2	− 5·1	1·0	− 4·3	0	− 4·0	0·6	− 5·1	24
25	− 5·9	− 3·6	− 5·5	− 2·7	− 4·9	− 1·9	− 4·6	− 1·2	− 3·7	− 0·6	− 3·6	− 1·7	− 3·3	− 2·7	− 3·0	− 1·3	− 4·8	− 4·0	− 5·6	− 3·8	− 6·6	− 3·1	− 7·3	− 5·5	25
26	− 9·1	0·1	− 9·4	− 3·0	− 9·8	− 1·8	− 9·4	− 2·5	− 9·6	− 3·7	− 8·9	− 3·0	− 9·9	− 3·0	− 9·3	− 2·2	− 8·5	− 1·8	− 8·9	− 2·2	− 6·7	−12·3	− 4·0	−11·5	26
27	5·2	4·5	5·9	4·2	4·9	1·0	5·6	− 0·3	5·5	− 0·6	7·0	1·0	8·8	− 2·0	8·0	− 4·0	7·4	− 2·0	12·8	1·5	14·3	2·1	13·5	2·0	27
28	− 0·2	2·9	− 0·6	3·1	1·3	− 6·4	4·1	− 7·2	2·4	− 6·7	− 1·0	− 3·9	− 0·7	− 3·6	− 1·3	− 2·6	0·4	− 3·1	4·8	− 0·5	3·8	1·6	4·2	0·3	28
29	− 1·7	0·3	− 2·6	1·4	− 2·7	1·4	− 1·7	1·4	− 2·4	1·8	− 1·1	1·8	− 0·8	0·8	2·3	0·9	0·8	2·3	− 0·9	− 0·1	0·9	− 0·2	− 0·7	− 0·5	29
30	− 4·2	1·3	− 4·3	1·7	− 4·2	2·2	− 5·2	2·5	− 5·7	− 0·1	− 5·5	− 3·6	− 6·8	− 2·0	− 8·8	− 1·4	− 8·0	− 0·1	−10·5	− 3·4	− 9·6	− 4·2	− 7·4	− 4·8	30
Means	− 4·70	0	− 4·32	− 0·61	− 4·30	− 1·16	− 3·76	− 1·27	− 3·05	− 1·51	− 3·30	− 1·56	− 3·08	− 1·91	− 3·41	− 0·98	− 3·90	− 0·35	− 3·90	− 0·26	− 3·99	− 0·72	− 3·87	− 0·86	Means.

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Hours	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 8·7	− 5·5	− 7·7	− 2·9	− 4·9	− 3·7	− 5·1	− 3·0	− 4·2	− 5·3	− 5·7	− 4·3	− 6·0	− 3·7	− 3·9	− 2·6	− 4·0	− 4·0	− 5·2	− 3·4	− 4·5	− 2·3	− 5·0	−10·6	1
2	2·9	−10·5	2·7	−10·2	1·0	− 8·3	1·6	− 9·2	1·3	− 4·3	1·4	− 5·4	0	− 3·2	− 1·3	− 4·6	− 0·7	− 3·0	− 0·6	− 1·0	− 1·7	− 0·5	− 1·9	− 0·8	2
3	− 2·1	− 0·4	2·6	0·3	4·3	− 0·1	3·2	− 2·6	2·7	− 2·6	1·5	− 5·4	2·4	− 2·9	1·0	− 2·3	0·4	− 4·5	0·3	− 3·4	− 1·1	− 6·0	0·4	− 2·7	3
4	−10·6	− 5·2	−12·2	− 7·1	−11·3	− 7·9	−10·2	− 8·5	−12·5	− 6·0	−11·9	− 5·4	− 9·6	− 6·9	− 8·0	− 4·7	− 7·9	− 3·9	− 7·9	− 4·4	− 5·5	− 2·8	− 7·2	− 2·2	4
5	− 1·6	− 4·0	− 0·7	− 2·5	− 1·9	− 1·1	− 1·4	− 2·3	− 2·2	− 0·7	0·5	− 4·7	0·9	− 3·4	− 0·4	− 3·6	− 0·9	− 2·9	− 2·7	− 4·8	− 2·1	− 4·4	− 1·7	− 6·3	5
6	− 7·0	− 3·5	− 5·4	− 5·0	− 2·7	− 8·9	− 1·9	− 7·6	− 0·7	− 6·9	− 0·5	− 6·0	0·2	− 4·9	− 0·5	− 4·5	− 1·7	− 5·2	− 2·8	− 3·3	− 1·9	− 0·3	− 3·0	0·3	6
7	− 4·0	−13·3	− 4·0	−12·8	− 3·0	−11·8	− 3·2	−12·2	− 2·5	− 9·4	− 2·1	− 8·0	− 2·9	− 8·4	− 3·2	− 6·2	− 3·5	− 5·2	− 4·6	− 3·2	− 4·3	− 2·3	− 5·6	− 4·2	7
8	− 6·6	0·7	− 6·0	0·8	− 8·1	3·1	− 7·0	4·2	− 6·9	4·4	− 7·4	4·2	− 6·4	3·0	− 4·6	3·2	− 4·0	2·2	− 3·9	3·6	− 4·8	6·8	− 5·0	6·5	8
9	− 3·2	6·1	− 5·6	5·3	− 2·9	4·7	− 2·9	4·9	− 2·3	5·4	− 2·5	8·3	− 0·4	7·2	0	6·6	− 1·2	5·8	− 1·1	6·2	− 0·9	6·2	− 0·8	4·9	9
10	5·8	2·7	7·2	3·4	6·0	2·9	7·4	3·2	6·5	4·2	8·2	3·2	7·5	4·7	6·7	5·1	6·0	4·9	6·2	5·6	5·3	7·2	5·4	7·8	10
11	6·1	16·4	5·8	16·0	5·7	15·3	7·2	17·5	5·7	17·2	6·9	17·4	5·4	16·9	3·7	17·1	4·6	14·4	4·1	15·8	3·7	13·1	2·9	12·7	11
12	6·8	13·3	7·2	12·8	7·9	11·7	8·0	12·5	7·9	11·8	8·1	11·5	6·9	9·7	5·5	9·4	5·3	7·6	6·4	6·1	4·8	4·0	4·2	4·2	12
13	4·9	5·8	2·6	8·2	0·7	8·5	1·9	8·6	2·9	8·4	− 2·1	10·5	− 0·1	10·6	− 1·9	9·3	− 4·4	5·3	− 1·5	5·6	− 1·6	4·7	− 2·1	4·7	13
14	− 0·9	0	0·4	2·2	0·6	− 0·2	2·4	− 3·9	2·6	− 3·4	2·2	− 1·5	0·7	− 1·2	0·7	− 0·6	0·5	4·0	− 1·5	1·0	− 1·1	1·4	− 2·1	− 0·1	14
15	− 4·1	1·5	− 5·9	1·9	− 6·3	3·0	− 5·3	2·1	− 5·0	2·3	− 5·6	1·6	− 5·7	0·2	− 5·8	0·3	− 5·8	0·5	− 4·8	0·6	− 4·9	0·3	− 4·2	0·3	15
16	−10·1	5·0	−10·0	3·9	− 9·5	5·3	− 9·8	7·3	− 9·0	7·7	− 9·1	7·4	− 9·3	4·1	− 8·5	4·3	− 9·2	3·6	−10·8	5·1	−10·6	5·4	− 9·7	5·1	16
17	− 7·0	2·2	− 7·0	2·8	− 7·2	2·1	− 6·4	1·3	− 5·8	− 0·1	− 2·6	0·2	− 1·1	0·2	− 1·9	0·7	− 2·3	2·3	− 2·7	2·9	− 2·7	2·6	− 3·4	2·8	17
18	− 4·0	8·4	− 4·6	6·0	− 5·2	6·4	− 7·1	8·6	− 6·2	8·8	− 6·0	8·1	− 6·9	7·8	− 7·6	7·4	− 8·1	7·9	− 8·4	6·9	− 8·5	7·8	− 9·8	8·1	18
19	− 6·2	7·8	− 6·5	6·5	− 5·9	6·3	− 5·8	1·5	− 4·9	1·9	− 6·3	2·6	− 5·0	4·6	− 4·5	5·6	− 5·0	3·7	− 4·5	4·5	− 4·5	5·0	− 3·7	4·6	19
20	− 1·7	9·2	− 2·8	5·7	− 2·6	3·6	− 7·4	2·3	− 5·0	− 0·5	− 3·1	− 1·0	− 0·9	0·6	− 1·3	1·3	− 1·6	1·0	− 2·2	1·6	− 3·7	1·4	− 3·6	1·2	20
21	− 2·8	7·1	− 6·1	7·1	− 6·3	7·8	− 8·1	7·5	−10·1	7·5	− 8·6	8·3	− 7·5	5·8	− 7·4	1·0	− 8·9	− 1·4	− 8·9	− 2·7	− 2·6	− 1·3	− 2·6	− 0·1	21
22	4·4	5·9	2·4	3·6	1·3	3·8	2·0	2·3	1·8	1·4	3·0	0·6	3·2	1·2	3·6	0·9	2·5	1·3	3·7	1·7	5·1	3·3	4·3	2·5	22
23	4·0	− 1·6	3·3	− 2·2	4·6	− 1·9	5·3	2·6	4·6	− 0·1	4·5	3·2	5·0	4·1	3·3	4·3	0·2	− 6·7	1·6	− 7·6	1·2	− 7·1	− 1·1	− 2·7	23
24	− 1·3	1·6	− 0·3	0·8	− 1·3	0	− 0·4	− 0·7	0·9	− 0·4	− 2·6	1·2	− 1·1	− 0·2	− 1·8	0·1	− 0·6	− 0·5	− 2·2	− 0·6	0·3	− 1·2	2·1	− 0·4	24
25	5·1	2·6	5·1	1·5	3·6	3·6	1·7	3·4	4·1	0·8	4·0	1·0	3·0	2·0	2·1	0·5	3·2	1·9	2·0	0·2	3·3	0·6	1·9	− 0·2	25
26	− 1·7	7·2	− 1·0	4·2	0·4	4·0	− 1·9	6·0	− 1·6	5·2	− 1·0	2·4	− 0·8	3·3	− 1·3	3·6	− 2·0	3·6	− 2·3	3·0	− 1·8	3·6	− 2·9	4·4	26
27	0·3	3·5	0·7	3·3	2·2	2·9	0·6	1·5	2·7	2·1	1·1	2·5	1·7	3·5	1·2	3·5	0·7	2·4	0·8	2·9	− 0·5	3·1	− 0·2	4·5	27
28	− 1·2	− 6·0	− 1·0	− 5·4	− 0·4	− 3·0	− 0·7	− 2·0	− 0·9	− 1·2	− 0·7	− 0·5	− 3·1	0·1	− 3·2	− 1·2	− 2·6	− 0·1	− 3·2	− 1·2	− 4·1	− 1·4	− 2·5	0·2	28
29	9·4	1·1	8·5	− 2·7	7·6	− 6·3	5·8	− 5·3	5·7	− 5·8	4·4	− 3·4	3·1	− 3·9	2·1	− 3·3	1·2	− 3·0	0·7	− 1·1	0·7	− 0·4	− 0·5	− 0·7	29
30	− 1·7	− 4·7	− 1·7	− 8·6	− 2·2	− 8·0	− 2·4	− 6·8	− 0·8	− 6·4	− 3·2	− 7·0	− 3·7	− 6·7	− 4·8	− 6·9	− 5·4	− 3·9	− 5·5	− 3·0	− 5·8	− 4·8	− 4·8	− 4·8	30
31	− 2·8	− 2·9	− 4·6	− 2·4	− 4·5	− 1·0	− 6·9	3·6	− 5·6	5·6	− 7·4	5·6	− 5·3	6·4	− 5·6	6·0	− 4·6	4·4	− 4·7	5·6	− 5·9	− 4·9	− 6·3	5·2	31
Means	− 1·26	1·62	− 1·44	1·11	− 1·30	1·12	− 1·51	1·19	− 1·19	1·34	− 1·37	1·52	− 1·15	1·63	− 1·54	1·64	− 1·77	1·05	− 1·97	1·26	− 1·94	1·20	− 2·18	1·44	Means.

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Hours -	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 3·9	− 3·9	− 3·2	− 3·6	− 4·5	− 4·5	− 5·7	− 2·2	− 5·1	− 1·4	− 4·5	− 2·7	− 4·8	− 4·1	− 3·5	− 3·7	− 2·0	− 6·0	− 1·8	− 6·3	− 1·4	− 7·3	0·1	−12·1	1
2	− 0·7	− 0·2	− 1·7	− 2·0	− 2·8	− 2·1	− 2·0	− 4·2	− 2·7	0·4	− 1·5	− 0·5	− 1·1	2·2	− 0·7	3·8	− 1·9	2·3	− 3·0	2·2	− 1·1	5·8	− 3·3	3·7	2
3	− 1·9	− 3·2	− 3·1	− 0·6	− 4·4	− 1·0	− 4·0	0·9	− 3·7	1·9	− 4·5	− 0·1	− 8·2	0·6	− 9·9	− 2·7	− 8·8	− 4·4	− 7·8	− 4·4	− 9·2	− 3·0	− 9·6	− 5·2	3
4	− 8·7	5·1	− 5·1	− 2·6	− 5·4	− 3·6	− 6·9	− 3·3	− 6·9	− 3·4	− 6·9	− 5·0	− 6·6	− 5·2	− 4·4	− 6·0	− 0·4	− 1·3	− 1·5	− 3·2	− 0·9	− 2·4	− 2·2	− 2·9	4
5	− 4·7	− 4·1	− 5·0	− 5·8	− 5·6	− 4·8	− 5·8	− 3·4	− 7·4	− 3·5	− 6·3	− 2·7	− 6·7	− 2·8	− 7·0	− 2·8	− 3·6	− 4·5	− 7·5	− 3·8	− 7·3	− 2·8	− 7·1	− 2·9	5
6	− 1·9	− 1·3	− 3·8	− 0·9	− 4·3	− 1·4	− 2·8	− 4·2	− 2·7	− 4·4	− 3·3	− 4·7	− 3·1	− 6·5	− 3·8	− 6·8	− 4·4	− 8·6	− 4·7	−10·6	− 3·1	−12·5	− 4·0	−13·5	6
7	− 4·9	− 2·7	− 5·5	− 2·2	− 6·2	− 4·4	− 6·6	− 3·4	− 6·7	− 1·7	− 7·1	− 3·4	− 7·1	− 2·4	− 6·4	− 2·1	− 7·1	− 1·7	− 6·7	− 2·2	− 6·2	− 0·8	− 6·1	0·9	7
8	− 5·6	6·9	− 5·4	5·9	− 6·4	5·8	− 6·7	5·6	− 5·1	6·1	− 5·0	5·0	− 5·3	4·9	− 6·4	4·3	− 7·0	2·8	− 6·3	2·0	− 5·5	5·5	− 4·2	5·0	8
9	− 0·7	5·0	− 0·4	4·9	0·8	4·6	0·6	3·3	0·6	3·4	1·8	3·3	2·6	4·2	3·6	5·1	4·8	6·5	6·1	3·9	6·0	3·6	5·7	3·1	9
10	4·8	9·2	3·4	9·1	3·7	9·1	4·9	10·6	4·1	14·4	4·8	11·2	4·6	11·8	4·8	13·1	4·0	13·7	4·3	14·9	4·0	13·3	6·4	15·4	10
11	2·9	9·6	4·0	11·8	4·8	11·6	4·7	11·9	6·6	12·1	5·6	13·4	5·1	13·8	5·7	12·9	5·9	14·3	6·7	14·1	7·1	13·8	7·0	11·8	11
12	3·3	3·7	5·5	4·5	4·3	3·6	4·8	3·5	4·9	4·2	5·6	4·1	8·5	6·1	6·6	7·0	6·6	4·7	5·8	8·2	6·4	8·4	4·3	6·0	12
13	4·3	8·7	6·2	4·4	− 4·9	5·2	− 5·1	4·2	− 4·0	6·7	− 8·8	6·6	− 2·9	1·4	− 3·1	2·3	− 3·3	0·6	− 2·9	7·7	− 1·3	6·3	− 0·2	6·1	13
14	− 2·2	0·2	− 1·9	0·5	− 4·0	1·5	− 3·7	1·9	− 4·2	3·8	− 4·4	4·9	− 5·3	5·1	− 5·8	6·0	− 6·5	7·4	− 5·9	5·7	− 6·8	7·4	− 2·8	2·4	14
15	− 5·8	0·9	− 5·1	0·2	− 5·7	0·4	− 6·2	0·3	− 6·1	0·8	− 6·2	1·9	− 7·8	0·9	− 8·6	0·5	− 8·4	− 0·9	− 9·1	− 0·5	−10·7	0·8	− 9·1	2·8	15
16	−10·6	5·1	−10·3	4·2	− 9·4	1·5	− 8·8	0·4	− 8·1	0·8	− 8·4	2·4	− 9·2	2·5	− 9·9	1·8	− 9·1	− 0·2	− 8·9	0·2	− 8·1	0·3	− 8·5	2·3	16
17	− 3·1	3·5	− 2·6	3·5	− 1·9	4·3	− 2·1	5·3	− 2·3	5·2	− 2·2	5·9	− 3·9	7·3	− 3·4	7·8	− 3·8	8·5	− 3·7	7·2	− 4·1	7·1	− 4·2	7·3	17
18	− 9·7	8·4	− 9·7	10·6	− 9·8	12·0	−11·4	12·2	−12·3	10·1	−12·0	8·3	−12·8	9·9	−12·7	10·4	−12·4	9·9	−12·0	10·3	−11·4	10·1	− 7·7	9·3	18
19	− 3·4	4·4	− 3·3	4·6	− 1·6	5·3	− 3·9	4·1	− 3·9	3·1	− 3·9	5·7	− 4·9	6·3	− 3·6	6·9	− 3·9	7·4	− 5·2	7·2	− 4·6	9·1	− 0·8	7·7	19
20	− 3·4	2·3	− 3·1	2·6	− 2·6	3·4	− 3·2	4·4	− 4·3	5·8	− 4·2	6·1	− 5·2	7·5	− 5·8	7·1	− 5·6	7·7	− 6·7	9·2	− 6·2	8·8	− 3·5	6·2	20
21	− 2·2	1·9	− 2·6	2·4	− 1·1	1·8	− 2·3	2·1	− 2·0	1·4	− 1·7	4·1	− 0·2	4·4	0	4·6	− 0·2	3·9	0·7	4·5	1·8	1·7	5·1	3·9	21
22	2·6	3·2	3·1	3·4	1·5	3·6	0·6	3·1	1·1	1·9	2·2	2·9	2·4	3·6	1·7	2·3	2·3	0·8	2·7	0·3	2·7	− 0·5	3·0	− 0·8	22
23	− 1·0	− 1·4	0·2	0·1	− 1·1	0·6	0·6	0·4	0·2	1·4	0	2·2	0·4	3·2	0·3	3·5	1·6	3·3	1·1	2·6	− 0·6	3·4	2·1	1·1	23
24	1·3	− 0·6	1·1	− 0·6	1·4	− 0·7	1·5	− 0·7	2·1	− 1·5	2·3	− 1·0	1·8	− 0·2	0·2	1·5	3·7	1·8	3·4	0·7	3·2	1·3	1·7	2·3	24
25	0·9	− 0·3	2·6	0·1	3·0	0·3	3·1	0·7	2·7	0·9	2·6	1·3	2·3	3·8	− 0·9	3·5	− 2·7	3·4	− 3·3	3·2	− 2·5	6·7	− 2·0	6·4	25
26	− 2·5	3·6	− 2·6	3·8	− 3·3	− 0·7	− 6·6	1·1	− 3·0	2·2	− 0·9	7·5	− 2·0	8·1	− 2·0	− 6·1	− 2·7	7·8	− 1·8	5·7	− 2·2	3·8	− 0·8	4·4	26
27	− 2·1	4·0	− 2·8	3·9	− 2·0	4·5	− 2·8	4·3	− 2·1	3 5	− 1·9	2·3	− 1·3	1·8	− 1·3	2·2	− 0·9	4·1	− 1·8	− 1·3	− 2·6	− 3·8	− 2·5	− 5·2	27
28	− 1·2	− 1·5	− 0·7	− 0·1	1·8	− 0·5	2·2	2·3	1·9	1·7	3·9	− 2·1	4·4	− 1·1	4·2	0·2	4·4	− 0·8	4·1	− 0·6	5·0	− 2·0	9·2	0·6	28
29	− 3·7	− 2·2	− 5·4	− 3·7	− 3·5	− 4·8	− 1·3	− 0·1	0·2	1·3	0·9	1·8	2·9	1·5	1·5	2·6	3·1	1·6	3·2	1·0	0·5	− 2·0	1·0	− 4·3	29
30	− 4·7	− 3·5	− 5·6	− 2·4	− 4·0	− 2·3	− 3·2	− 2·4	− 3·5	− 3·4	− 2·6	− 5·2	− 0·9	− 6·2	− 3·0	− 1·0	− 4·1	− 2·8	− 4·0	− 1·0	− 5·3	− 1·3	− 3·1	− 2·8	30
31	− 6·9	6·1	− 6·1	7·1	− 6·0	6·0	− 5·3	6·3	− 3·9	6·1	− 4·6	8·0	− 4·1	8·6	− 4·9	9·1	− 6·3	10·0	− 6·9	11·5	− 5·5	8·0	− 3·8	7·3	31
Means -	− 2·43	2·03	− 2·59	2·04	− 2·55	1·75	− 2·69	2·10	− 2·44	2·55	− 2·14	2·60	− 2·21	2·94	− 2·53	2·82	− 2·22	2·94	− 2·37	2·69	− 2·22	2·64	− 1·27	2·14	Means.

JUNE.

Hours -	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 3·0	4·8	− 1·8	4·6	− 0·9	2·6	1·2	3·0	1·8	2·3	2·1	1·7	2·8	1·4	1·5	1·1	2·3	0·3	1·9	− 0·5	1·9	− 0·9	− 0·1	− 0·5	1
2	− 5·9	7·8	− 6·1	8·6	− 3·8	5·1	− 3·2	3·4	− 3·0	4·3	− 1·8	2·9	0	2·6	− 1·0	2·8	− 2·1	3·2	− 3·1	6·2	− 3·0	5·0	− 2·5	3·4	2
3	− 5·5	− 4·3	− 7·2	− 5·2	− 7·6	− 6·4	− 7·5	− 4·7	− 6·1	− 4·9	− 6·2	− 3·9	− 2·8	− 4·1	− 4·4	− 2·2	− 4·0	− 1·6	− 4·6	− 2·0	− 6·5	− 2·0	− 8·6	− 0·2	3
4	− 1·0	− 7·0	− 1·8	− 6·9	− 1·1	− 7·4	− 3·5	− 7·2	− 2·0	− 7·1	− 1·1	− 8·5	− 0·6	− 6·2	− 0·6	− 5·3	− 1·1	− 4·3	− 2·5	− 2·8	− 3·4	0·7	− 4·1	0·4	4
5	− 6·4	1·8	− 6·6	3·1	− 5·4	6·1	− 6·9	4·4	− 6·4	5·5	− 6·4	5·8	− 6·8	9·4	− 8·7	8·2	− 5·4	8·0	− 5·7	9·0	− 3·6	8·6	− 3·1	7·8	5
6	1·0	9·0	1·7	9·9	3·2	7·7	3·1	8·1	2·9	6·6	2·8	7·5	1·9	7·4	2·4	7·1	1·2	6·8	− 0·3	6·1	0	4·7	− 0·5	3·9	6
7	1·1	− 7·2	1·5	− 7·8	2·1	− 6·8	3·4	− 7·7	5·7	− 9·1	4·0	− 7·7	6·4	− 9·0	7·3	− 9·1	6·5	− 5·9	4·5	− 6·2	3·1	− 4·7	− 2·5	1·4	7
8	− 3·4	− 4·5	− 3·1	− 3·9	− 3·1	− 2·0	− 2·3	0	− 2·8	− 1·8	− 2·6	0	− 1·6	0·7	− 2·0	2·2	− 0·6	2·2	− 3·5	1·7	− 2·5	− 0·6	− 2·5	− 0·7	8
9	− 2·1	− 5·6	− 6·0	− 3·9	− 5·1	− 4·2	− 4·8	− 4·1	− 5·4	− 2·4	− 5·2	− 1·8	− 5·2	− 2·1	− 4·6	− 2·0	− 4·9	− 0·5	− 4·5	0·8	− 6·6	1·8	− 7·7	− 3·3	9
10	− 4·1	−11·8	− 3·4	− 9·5	− 2·5	− 9·2	− 3·0	− 7·9	− 2·0	− 8·2	− 2·0	− 5·4	− 2·4	− 6·3	− 2·0	− 6·6	− 2·3	− 4·0	− 2·3	− 4·0	− 8·3	− 3·8	− 1·0	− 4·6	10
11	− 1·2	− 2·1	− 2·6	− 3·0	− 3·0	− 1·7	− 4·5	− 1·5	− 3·7	1·5	− 4·5	1·2	− 5·5	0·7	− 4·7	1·2	− 6·1	2·6	− 5·8	1·2	− 7·6	0·9	− 5·7	0·9	11
12	− 8·6	−15·2	− 7·3	−10·9	− 7·8	−10·1	− 7·7	− 9·8	− 6·1	− 8·7	− 5·5	− 7·7	− 5·4	− 8·4	− 4·2	− 7·3	− 3·7	− 4·9	− 3·4	− 5·5	− 2·5	− 4·7	− 2·0	− 4·5	12
13	− 5·0	−11·6	− 4·4	−11·7	− 3·1	−11·0	− 3·3	−10·3	− 2·4	− 8·4	− 1·9	− 8·4	− 2·6	− 9·2	− 1·6	− 7·8	− 3·9	− 6·8	− 3·2	− 7·6	− 3·7	− 7·5	− 3·6	− 8·2	13
14	− 0·6	− 7·5	1·0	− 5·2	1·7	− 4·1	− 0·1	− 3·6	− 0·2	− 2·7	− 2·8	− 1·9	− 3·7	− 1·4	− 4·2	0	− 4·0	0·8	− 3·9	0·4	− 3·9	0·2	− 4·4	0·8	14
15	− 3·6	− 3·8	− 2·8	− 4·0	− 2·7	− 3·4	− 2·3	− 3·9	− 1·9	− 5·0	− 2·1	− 3·5	− 2·3	− 2·9	− 2·2	− 3·6	− 4·8	− 2·2	− 4·9	− 0·2	− 3·4	− 1·7	− 4·2	− 5·6	15
16	− 4·3	1·0	− 2·0	1·1	− 2·0	2·4	− 1·1	3·1	− 2·9	3·7	− 1·8	2·0	− 1·2	3·7	− 0·7	3·9	0·4	4·3	0·4	3·4	0·4	3·0	− 0·1	2·2	16
17	0·9	− 5·6	− 2·4	− 6·8	− 2·3	− 7·0	− 2·1	− 6·3	− 2·7	− 5·5	− 1·4	− 7·8	− 4·7	− 9·0	− 2·7	− 8·5	− 1·0	− 6·2	− 0·6	− 6·5	− 1·0	− 5·7	2·0	− 4·3	17
18	− 3·1	− 2·3	− 2·8	− 3·8	− 2·0	− 3·9	− 2·7	− 2·6	− 1·1	− 1·4	− 0·2	− 2·4	0·5	− 2·8	0·5	− 2·5	0·2	− 1·1	− 0·1	− 0·9	0·7	0·5	0	1·3	18
19	− 2·7	0·3	− 1·8	− 0·1	− 0·7	0·9	− 0·1	1·7	0·6	0·4	0·4	− 0·1	0·2	0·3	− 0·4	1·3	− 1·5	1·1	− 1·3	0·5	− 0·6	1·8	0·1	2·0	19
20	− 8·4	4·2	− 7·3	3·4	− 7·7	2·5	− 8·2	2·8	− 6·2	2·3	− 6·2	2·9	− 5·5	3·5	− 4·6	2·9	− 4·1	5·8	− 4·6	4·8	− 3·4	4·1	− 3·6	4·9	20
21	− 9·0	− 0·6	− 7·9	0·4	− 7·6	− 0·1	− 7·2	0·2	− 7·9	− 1·1	− 7·6	− 0·3	− 8·2	− 0·2	− 7·2	− 3·4	− 5·9	− 5·0	− 6·2	− 5·1	− 5·1	− 5·3	− 4·9	− 4·0	21
22	− 7·8	− 1·4	− 8·9	− 0·4	− 7·6	0	− 8·1	− 0·4	− 8·8	0·5	− 9·2	− 0·4	− 8·8	1·6	− 8·7	3·1	− 8·7	3·6	− 8·6	3·2	− 8·9	1·6	−10·1	− 0·2	22
23	− 7·1	− 8·3	− 4·4	−10·1	− 3·7	− 8·4	− 3·1	− 9·8	− 3·0	−10·2	− 2·5	− 6·9	− 1·6	− 7·0	− 1·5	− 5·6	− 1·6	− 4·8	− 1·8	− 4·3	− 1·6	− 4·2	− 2·2	− 3·3	23
24	− 8·2	− 7·7	− 4·8	−10·3	− 5·8	−10·1	− 5·0	− 8·5	− 4·7	− 9·2	− 3·5	− 6·3	− 4·5	− 6·7	− 3·6	− 6·0	− 3·5	− 4·8	− 3·9	− 4·1	− 3·9	− 3·2	− 5·2	− 4·5	24
25	− 6·5	−10·1	− 6·6	−12·1	− 6·2	−13·3	− 5·1	−16·0	− 3·8	−15·8	− 2·9	−15·6	− 1·8	−13·3	− 2·1	−12·8	− 0·5	−10·0	− 1·9	− 9·4	− 1·7	− 8·8	− 1·5	− 9·1	25
26	1·3	− 6·8	0·8	− 7·3	0·9	− 6·5	0·5	− 6·8	− 2·2	− 4·5	− 2·9	− 2·0	− 3·0	− 0·9	− 2·5	0·7	− 2·0	− 0·6	− 2·2	− 2·7	− 1·1	− 3·1	− 1·9	− 2·5	26
27	− 4·3	− 8·9	− 0·8	− 8·0	− 0·1	−10·0	0·9	−11·7	1·0	−10·5	1·4	−11·0	1·6	− 9·9	0·4	− 9·1	− 0·4	− 9·3	0·4	− 8·6	− 0·1	− 8·3	0	− 7·6	27
28	− 2·6	− 5·1	− 2·8	− 4·4	− 3·2	− 4·6	− 2·7	− 5·1	− 1·7	− 4·4	− 1·3	− 4·5	− 1·7	− 3·4	− 1·6	− 1·6	− 1·6	− 1·9	− 2·8	− 2·7	− 3·1	− 2·8	− 3·2	− 3·7	28
29	− 4·4	− 2·2	− 4·9	− 2·4	− 4·7	− 2·2	− 4·6	− 3·7	− 5·0	− 4·1	− 6·0	− 2·7	− 6·3	− 4·3	− 5·9	− 3·6	− 5·3	− 4·0	− 4·7	− 3·8	− 3·2	− 5·4	− 3·8	− 4·7	29
30	1·0	−11·5	1·1	−12·4	4·1	−14·8	3·9	−12·6	2·3	−11·5	3·8	− 9·4	4·2	− 8·5	3·4	− 7·8	4·2	− 8·2	4·6	− 6·9	1·7	− 5·8	3·3	− 5·0	30
Means -	− 3·78	− 4·07	− 3·48	− 3·97	− 2·92	− 4·00	− 2·87	− 3·92	− 2·59	− 3·65	− 2·44	− 3·14	− 2·29	− 2·81	− 2·21	− 2·34	− 2·14	− 1·58	− 2·49	− 1·55	− 2·70	− 1·52	− 2·79	− 1·58	Means.

JUNE.

Hours	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	0·1	0·2	− 0·1	0·1	− 1·8	1·6	− 1·2	2·6	− 0·6	2·3	− 1·1	1·1	− 1·8	1·1	− 2·7	2·0	− 2·2	3·2	− 2·8	3·3	− 0·1	6·5	− 5·3	6·9*	1
2	− 1·9	6·0	− 1·5	6·1	− 2·5	4·9	− 3·0	4·6	− 3·2	4·3	− 2·3	3·2	− 3·1	2·9	− 3·0	2·0	− 3·1	1·3	− 2·3	− 2·2	− 2·6	− 3·0	− 4·8	− 2·6	2
3	− 8·9	2·2	−11·1	3·2	−10·9	3·7	−10·6	3·7	− 6·6	1·6	− 3·2	3·3	− 2·6	2·4	− 3·7	3·2	− 1·1	− 2·9	0·6	− 3·1	− 1·8	− 4·5	− 1·2	− 5·4	3
4	− 5·4	0·3	− 3·2	1·0	− 8·6	2·1	− 7·1	2·9	− 7·0	3·6	− 7·7	3·5	− 7·9	3·0	− 7·7	1·0	− 8·8	− 1·7	− 8·0	− 1·8	− 9·1	− 2·2	− 5·5	0·1†	4
5	− 2·6	6·8	− 2·0	6·9	− 1·1	5·8	− 0·4	6·3	0	6·6	0·1	7·7	− 0·2	8·5	0·1	9·6	0	10·3	2·0	8·6	1·1	8·3	1·6	8·8	5
6	− 0·6	4·1	− 0·3	3·6	− 0·9	4·3	− 1·0	4·8	− 1·7	4·1	0·1	4·4	1·8	3·3	2·8	2·2	1·6	0·1	3·6	− 0·3	3·0	− 0·9	3·1	− 1·8	6
7	− 2·8	0·6	− 2·6	− 0·7	− 2·7	1·0	− 2·8	0·9	− 2·4	0·6	− 2·0	− 3·7	− 0·4	− 2·4	− 2·1	− 1·8	− 2·3	− 2·0	− 2·4	− 4·9	− 3·3	− 4·7	− 2·6	− 3·9	7
8	− 3·4	0·8	− 4·3	0·2	− 4·8	0	− 4·9	0·7	− 3·6	− 3·3	− 2·3	− 2·9	− 2·3	− 2·4	− 2·4	− 2·3	− 2·2	− 2·4	− 2·1	− 0·4	− 1·8	− 0·8	− 1·8	− 3·2	8
9	− 8·1	− 4·0	− 7·6	− 3·8	− 7·4	− 6·1	− 7·7	− 6·6	− 9·3	− 7·2	− 7·2	− 7·7	− 4·2	− 9·3	− 2·7	− 7·9	− 0·9	−10·2	− 1·9	− 8·9	− 2·5	−11·5	− 1·7	−10·5	9
10	− 1·2	− 5·0	0·1	− 7·4	1·0	− 7·0	0·7	− 6·3	1·3	− 5·1	− 0·3	1·6	− 0·9	2·1	− 0·9	0·9	0·6	0·8	0·8	− 0·2	− 0·2	− 2·2	− 0·6	− 2·5	10
11	− 5·5	− 1·2	− 6·1	− 3·2	− 7·3	− 6·2	− 7·4	− 5·8	− 7·4	− 6·7	− 9·3	− 7·6	− 9·2	− 9·6	− 9·4	− 9·7	−10·7	−11·0	−10·6	−10·3	−10·8	−10·0	− 9·5	−11·6	11
12	− 2·2	− 5·2	− 2·5	− 4·7	− 2·6	− 5·8	− 2·9	− 5·8	− 3·0	− 5·7	− 2·5	− 5·9	− 1·5	− 1·6	− 1·9	− 7·4	− 2·2	− 8·3	− 2·8	− 8·4	− 2·9	−10·8	− 4·5	−10·3	12
13	− 3·9	− 7·5	− 4·5	− 7·0	− 5·0	− 6·5	− 3·4	− 7·3	− 2·7	− 6·8	− 2·9	− 6·0	− 2·4	− 5·9	− 2·4	− 5·7	− 2·6	− 6·5	− 1·5	− 6·8	− 2·4	− 8·4	− 1·6	− 7·9	13
14	− 5·0	− 0·2	− 5·4	− 1·1	− 4·1	− 6·2	− 2·6	− 5·4	− 3·3	− 5·9	− 3·4	− 6·7	− 4·2	− 8·2	− 3·2	− 8·4	− 4·5	− 7·4	− 3·5	− 5·1	− 2·8	− 3·2	− 2·8	− 3·0	14
15	− 3·6	− 2·9	− 3·7	− 2·3	− 3·5	− 3·3	− 4·0	− 2·8	− 4·3	− 3·0	− 4·7	− 3·1	− 2·0	− 3·2	− 1·1	− 3·1	− 0·7	− 3·7	− 2·4	− 2·1	− 1·2	− 5·1	− 2·5	− 2·6	15
16	− 0·2	− 1·3	− 0·2	− 2·0	− 0·3	0·4	− 1·2	− 1·1	− 2·9	− 1·2	− 0·3	− 1·8	− 0·4	− 3·7	0·2	− 5·9	3·2	− 7·5	2·7	−10·5	8·1	− 7·0	− 1·6	− 3·7	16
17	2·5	− 4·9	− 1·9	− 5·9	0·9	− 6·9	− 1·7	− 5·4	− 1·8	− 5·4	− 1·5	− 6·2	0·6	− 5·3	0·9	− 4·7	2·1	− 4·6	0·4	− 3·8	0·5	− 2·4	− 1·1	− 4·1‡	17
18	− 0·3	0·5	− 0·7	− 1·3	− 0·7	0·9	− 0·8	− 1·7	− 0·9	− 1·9	− 1·9	− 2·1	− 2·7	− 2·8	− 3·5	− 1·0	− 4·3	0·9	− 4·5	0·3	− 4·5	− 1·6	− 2·8	0	18
19	− 0·1	3·3	− 0·5	3·1	− 1·1	2·8	− 1·0	3·7	− 0·7	3·6	− 0·9	3·5	− 1·3	2·9	− 1·2	2·8	− 4·9	4·1	− 3·9	4·5	−10·3	3·2	− 9·7	4·1	19
20	− 5·7	3·7	− 5·8	5·3	− 6·3	4·6	− 8·0	3·3	− 9·2	2·6	− 8·6	2·3	−10·2	1·8	− 9·9	− 1·1	− 9·3	0·2	− 8·6	− 0·2	− 6·3	0·3	− 7·0	1·2	20
21	− 6·0	− 3·8	− 8·4	− 4·1	− 8·6	− 4·1	− 7·4	− 3·5	− 6·8	− 4·7	− 5·4	− 4·0	− 6·4	− 4·6	− 8·2	− 5·6	− 9·8	− 4·1	− 8·2	− 3·6	− 8·5	− 0·8	− 7·1	− 1·4	21
22	− 9·0	− 2·4	− 7·5	− 5·7	− 7·4	− 7·3	− 6·9	− 5·8	− 6·3	− 6·6	− 6·7	− 5·3	− 7·4	− 6·1	− 7·9	− 4·4	− 7·9	− 1·0	− 8·8	− 3·0	− 7·6	− 5·4	− 9·1	− 7·6	22
23	− 2·9	− 4·4	− 2·8	− 1·3	− 3·7	− 1·2	− 4·0	− 1·6	− 4·8	− 2·8	− 5·4	− 4·4	− 6·3	− 4·6	− 6·2	− 5·7	− 5·0	− 5·6	− 7·0	− 6·6	− 6·6	− 5·9	− 7·0	− 8·3	23
24	− 4·5	− 5·3	− 4·2	− 6·3	− 4·0	− 6·7	− 3·1	− 7·2	− 4·0	− 8·9	− 5·4	−10·5	− 5·0	−10·2	− 3·4	−11·4	− 5·4	− 5·6	− 6·0	−10·2	− 7·6	− 9·9	− 6·1	− 9·5	24
25	− 0·7	− 9·5	0·4	− 8·5	0·7	− 8·0	0·1	− 7·8	0	− 8·2	1·0	− 7·3	0·3	− 7·8	− 0·4	− 8·1	− 7·0	− 8·6	1·7	− 8·9	− 0·7	− 8·3	0·3	− 8·0	25
26	− 1·3	− 3·2	− 2·1	− 4·4	− 2·2	− 3·5	− 2·2	− 4·2	− 4·0	− 4·0	− 4·0	− 2·7	− 4·2	− 2·4	− 4·3	− 3·7	− 4·2	− 2·6	− 4·5	− 4·0	− 5·5	− 2·8	− 4·4	− 7·1	26
27	0·8	− 5·9	1·1	− 5·8	0·9	− 7·9	0·3	− 6·5	− 0·5	− 4·2	− 1·4	− 4·0	− 2·5	− 3·2	− 1·6	− 3·5	− 3·0	− 4·2	− 3·3	− 3·8	− 1·5	− 3·6	− 2·5	− 4·7	27
28	− 2·4	− 3·4	− 2·0	− 4·4	− 2·8	− 4·6	0·1	− 2·9	− 1·0	− 3·1	− 1·6	− 2·5	− 2·4	− 1·6	− 1·6	− 0·4	− 3·5	− 0·6	− 2·8	− 1·0	− 3·6	− 0·7	− 3·4	− 2·1	28
29	− 4·0	− 4·2	− 3·9	− 4·2	− 3·8	− 4·5	− 3·8	− 6·4	− 3·8	− 7·9	− 2·8	− 7·5	− 3·7	− 7·5	− 1·4	− 8·3	0·5	− 9·1	1·5	− 9·3	0·9	− 9·4	2·0	−10·7	29
30	3·2	− 4·2	1·3	− 5·5	2·2	− 5·0	2·2	− 4·8	2·1	− 5·5	3·0	− 4·9	3·4	− 6·2	2·5	− 7·3	1·7	− 7·6	1·6	− 7·9	0·3	− 9·1	1·3	− 8·8	30
Means	− 2·85	− 1·58	− 3·01	− 1·78	− 3·26	− 2·28	− 3·08	− 2·07	− 3·16	− 2·50	− 2·95	− 2·37	− 2·98	− 2·49	− 2·88	− 2·99	− 3·20	− 3·21	− 2·77	− 3·69	− 3·01	− 3·75	− 3·16	− 4·01	Means.

* 19—22 h. 4 years.

† 14—22 h. 4 years.

‡ 12—20 h. 4 years.

JULY.

Hours -	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	1·3	−10·1	2·0	− 9·0	2·0	− 8·6	1·0	− 7·7	1·7	− 6·5	1·3	− 5·3	0·7	− 3·4	0·4	− 3·3	− 0·1	− 2·4	− 1·5	− 2·0	− 1·4	− 1·3	− 1·4	− 1·7	1
2	0·1	4·1	− 0·8	3·2	− 0·5	5·6	− 0·4	6·1	1·0	5·1	2·5	4·1	3·8	3·9	3·9	3·3	3·1	2·5	3·9	1·6	4·7	2·4	4·1	2·1	2
3	0·1	− 0·8	− 1·0	− 1·2	− 0·1	− 2·2	3·1	− 2·2	2·4	− 1·8	2·6	− 0·8	2·0	− 0·3	1·2	− 1·2	1·2	− 0·1	1·1	− 1·2	0·8	− 0·9	− 0·4	0·6	3
4	− 4·7	0·7	− 4·2	0·1	− 3·3	− 7·9	− 3·4	− 4·0	− 3·7	− 6·9	− 4·2	− 6·7	− 2·9	− 6·7	− 1·8	− 5·3	− 1·0	− 4·9	− 3·3	− 4·9	− 3·2	− 5·1	− 2·7	− 6·8	4
5	4·4	−13·5	4·4	−11·6	5·0	−10·8	6·2	−11·5	5·0	−12·2	5·3	−12·0	5·2	−10·6	4·6	−10·2	4·6	− 9·7	4·0	− 8·2	4·7	− 8·1	3·2	− 8·6	5
6	2·6	− 2·7	2·5	− 2·3	3·1	− 6·3	3·5	− 6·6	2·7	− 0·1	3·0	0·6	3·3	1·1	2·3	0·5	− 2·3	1·8	− 2·0	3·0	− 1·8	0·3	− 2·3	1·9	6
7	0·5	− 2·2	0·2	− 1·6	1·1	− 0·9	3·4	0·3	4·2	0·4	3·7	1·5	4·4	0·6	4·4	0·8	3·4	0·2	3·0	0·5	3·6	− 0·1	3·9	− 0·5	7
8	0·7	− 7·8	0·6	− 8·3	0·1	− 8·2	1·4	− 7·8	0·9	− 7·8	0·8	− 5·5	0	− 5·1	0·1	− 3·7	− 0·4	− 2·8	− 1·0	− 4·1	− 2·4	− 2·8	− 2·9	− 3·0	8
9	2·3	− 2·5	0·4	− 1·7	− 2·7	− 1·1	− 2·9	− 1·1	− 1·9	− 1·0	− 1·5	− 0·7	0·5	− 2·7	0·5	− 1·7	1·0	− 0·7	0·8	− 1·6	− 0·7	− 1·5	− 0·7	− 1·6	9
10	1·3	− 5·0	1·7	− 4·1	1·7	− 4·0	2·1	− 3·0	0·9	− 2·6	1·1	− 1·6	0·7	− 0·5	0·5	− 0·1	0	0·9	− 0·3	1·4	0·6	1·2	− 0·4	1·2	10
11	0·6	− 3·2	− 0·1	− 1·7	− 0·1	− 3·1	0·5	− 3·0	0·6	− 3·7	0·6	− 4·2	− 0·8	− 5·0	− 0·9	− 4·8	− 0·7	− 4·2	− 0·9	− 4·0	− 1·0	− 4·7	− 0·3	− 5·1	11
12	− 3·6	− 6·7	− 1·9	− 5·8	− 2·9	− 6·1	− 3·0	− 4·1	− 2·3	− 4·5	− 1·0	− 4·3	− 2·6	− 4·5	− 1·9	− 5·3	− 1·3	− 3·4	− 1·5	− 3·1	− 1·5	− 3·6	− 2·8	− 1·6	12
13	− 8·0	5·5	− 6·8	3·1	− 6·5	2·0	− 7·0	0·8	− 6·2	1·5	− 5·0	0·4	− 3·8	0·5	− 3·2	− 1·3	− 4·4	1·1	− 4·0	− 1·1	− 3·5	− 3·0	− 4·5	− 1·9	13
14	− 5·0	− 4·0	− 4·2	− 5·2	− 3·2	− 4·1	− 2·0	− 3·2	− 3·4	− 2·5	− 4·2	− 4·4	− 3·7	− 1·3	− 3·4	− 3·0	− 2·3	− 2·1	− 1·3	− 2·7	− 1·5	− 3·3	− 1·8	− 2·5	14
15	− 7·0	1·7	− 6·8	1·3	− 5·8	− 0·6	− 3·4	− 0·6	− 2·9	− 0·2	− 2·3	1·5	− 2·1	1·1	− 2·3	0·9	− 2·0	0·8	− 2·0	0·5	− 1·8	1·3	− 2·2	2·0	15
16	1·7	− 7·4	2·0	− 7·4	1·6	− 7·0	1·1	− 7·3	1·6	− 6·0	1·6	− 6·5	1·7	− 4·7	1·7	− 6·0	2·1	− 2·8	1·6	− 2·7	1·8	− 2·4	− 0·1	− 1·1	16
17	1·8	− 9·4	3·7	− 8·7	3·0	− 9·9	3·4	− 8·6	2·5	− 7·3	3·1	− 8·3	3·8	− 8·5	3·8	− 8·8	3·7	− 7·0	3·6	− 7·2	4·0	− 5·7	4·5	− 4·3	17
18	4·5	− 3·0	3·2	− 3·4	3·7	− 3·9	5·0	− 4·3	6·1	− 4·7	7·9	− 5·7	8·7	− 5·7	8·0	− 5·9	7·9	− 3·9	8·2	− 5·7	9·9	− 5·9	9·4	− 5·3	18
19	8·0	− 4·5	7·5	− 4·6	6·6	− 5·8	6·6	− 5·7	6·0	− 5·7	6·2	− 6·4	6·4	− 7·2	6·5	− 6·9	6·1	− 6·5	6·1	− 6·7	6·1	− 6·9	5·5	− 5·3	19
20	3·0	− 7·4	3·2	− 8·1	1·7	− 7·1	1·8	− 6·0	3·2	− 5·7	2·9	− 5·3	3·8	− 5·4	3·1	− 5·9	3·5	− 6·3	2·5	− 5·5	2·0	− 4·9	1·2	− 4·2	20
21	− 3·6	4·4	− 3·5	3·7	− 2·2	1·2	− 2·2	− 0·5	− 2·8	− 0·9	− 1·8	− 5·3	− 0·1	− 4·0	1·3	− 2·7	0·5	− 3·8	− 0·4	− 2·3	− 2·1	− 3·1	− 2·3	− 1·1	21
22	2·1	2·9	1·8	2·7	1·8	2·0	− 0·4	1·3	− 1·2	0·9	− 0·5	0·2	− 1·6	− 0·2	− 0·4	− 0·2	− 0·7	0	− 0·2	− 0·9	− 0·4	− 0·4	0·7	− 0·6	22
23	*4·8*	*− 6·8*	*3·4*	*− 6·9*	*3·6*	*− 8·0*	*4·0*	*− 9·0*	*3·6*	*− 8·9*	*3·8*	*− 7·9*	*3·8*	*− 8·2*	*2·8*	*− 7·0*	*1·6*	*− 6·9*	2·3	− 4·4	1·6	− 4·4	1·0	− 5·0	23
24	2·1	− 8·6	2·2	− 6·2	1·8	− 6·4	3·6	− 5·2	2·9	− 4·0	2·5	− 4·7	1·5	− 3·7	2·2	− 3·6	2·1	− 4·0	3·0	− 2·8	2·2	− 2·9	2·0	− 2·8	24
25	2·9	− 6·9	2·7	− 6·7	2·4	− 6·7	2·4	− 7·0	1·6	− 5·0	2·2	− 4·1	2·0	− 5·5	− 0·3	− 4·4	− 0·8	− 3·6	− 0·6	− 4·0	− 0·9	− 3·7	− 0·1	− 2·8	25
26	− 0·5	− 6·3	0·2	− 6·5	− 1·6	− 5·1	0·4	− 5·2	− 0·1	− 4·1	0·7	− 3·8	0·1	− 2·9	0·5	− 2·8	0·5	− 1·8	0·4	− 1·2	0·1	− 1·4	− 0·1	− 1·0	26
27	1·7	− 4·7	2·4	− 4·7	0·7	− 4·7	1·0	− 3·7	− 0·1	− 3·8	1·0	− 4·4	1·2	− 4·9	0·1	− 5·7	− 0·5	− 6·8	0·4	− 6·8	1·3	− 6·2	0	− 6·6	27
28	1·6	− 4·4	2·4	− 4·1	0·4	− 2·0	0·4	− 1·3	2·0	− 0·5	0·8	− 1·9	1·1	− 0·9	2·5	− 2·2	3·6	− 2·3	1·1	− 2·6	1·2	− 4·3	2·4	− 3·3	28
29	0	− 1·6	0·5	− 4·4	2·3	− 3·2	1·8	− 2·3	1·8	− 4·6	2·5	− 4·3	3·4	− 3·5	2·2	− 4·3	2·5	− 2·3	2·2	− 1·6	2·7	− 1·7	2·8	− 1·3	29
30	2·1	− 0·3	1·3	− 0·7	1·2	− 1·0	3·4	0·8	2·1	1·3	4·3	− 1·1	3·6	− 1·8	3·1	− 3·6	2·0	− 3·5	1·9	− 5·6	0·2	− 5·0	1·0	− 4·7	30
31	3·1	− 5·9	3·9	− 5·8	2·7	− 5·6	2·9	− 5·8	3·0	− 3·3	1·7	− 2·8	2·4	− 1·7	0·8	− 0·8	0	− 0·7	0·3	− 0·6	0·3	− 0·3	1·2	− 0·5	31
Means -	0·67	− 3·74	0·74	− 3·76	0·57	− 4·18	1·11	− 3·79	1·01	− 3·39	1·33	− 3·54	1·50	− 3·28	1·36	− 3·39	1·06	− 2·76	0·88	− 2·79	0·83	− 2·85	0·58	− 2·43	Means.

JULY.

Hours	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 1·9	0·5	− 2·0	1·1	− 2·5	1·3	− 2·9	2·6	− 2·3	3·0	− 0·8	2·5	− 2·0	4·4	− 2·9	5·4	− 3·9	5·1	− 3·7	5·5	− 2·9	5·2	− 3·2	4·6	1
2	4·2	3·1	3·1	1·8	3·9	2·0	5·1	0·8	4·7	0·8	4·3	1·7	5·1	2·3	5·9	1·4	5·8	2·5	5·1	3·8	4·4	2·9	4·7	0·7	2
3	− 0·8	− 3·9	− 1·2	− 3·0	− 1·7	2·1	− 2·2	2·9	− 5·0	2·7	− 5·8	1·8	− 4·6	2·2	− 3·2	0·3	− 4·0	− 0·9	− 4·1	− 1·7	− 4·0	− 0·7	− 4·3	− 3·5	3
4	− 3·7	− 4·8	− 4·4	− 3·2	− 3·8	− 4·9	− 2·1	− 4·9	− 1·3	− 7·2	0·6	− 8·0	2·3	− 6·1	3·9	− 4·8	4·5	− 6·0	3·9	− 9·1	3·9	−10·4	3·7	−13·0	4
5	3·1	− 8·0	2·0	− 6·4	1·0	− 4·9	2·2	− 4·0	3·4	− 2·7	4·8	− 1·8	5·1	− 1·4	4·6	− 1·6	2·8	− 1·7	2·8	− 2·8	3·4	− 2·9	4·2	− 2·3	5
6	− 2·8	3·0	− 2·7	1·4	− 1·9	1·8	− 3·2	2·6	− 3·0	3·1	− 4·7	3·2	− 4·2	3·9	− 3·5	1·9	− 1·9	− 0·5	− 0·6	− 1·7	0·6	− 1·1	− 0·4	− 1·7	6
7	3·6	− 1·3	4·0	− 0·9	4·6	− 1·1	4·7	− 0·9	4·2	− 1·0	4·3	− 2·0	2·8	− 2·7	2·1	− 3·7	2·4	− 5·4	2·1	− 5·3	0·3	− 5·7	− 0·7	− 8·3	7
8	− 2·4	− 2·9	− 1·9	− 1·4	− 1·4	− 2·4	− 1·2	− 3·2	− 1·4	− 3·0	− 1·2	− 4·1	− 1·1	− 4·1	− 1·7	− 3·7	− 1·4	− 2·9	1·3	− 3·1	1·2	− 2·0	0·3	− 1·9	8
9	− 1·3	− 1·1	− 0·6	− 1·3	− 0·3	− 1·6	− 0·8	− 1·9	− 0·4	− 2·9	− 0·3	− 2·8	0·7	− 4·3	0·6	− 4·2	1·5	− 4·4	1·4	− 3·7	1·7	− 4·8	1·1	− 4·9	9
10	− 2·3	2·1	− 3·4	2·2	− 4·0	3·0	− 4·2	2·7	− 3·1	2·0	− 2·9	− 0·7	− 2·0	0	− 2·4	1·0	− 0·8	− 1·1	− 0·5	0	− 0·8	0	− 1·4	− 2·0	10
11	− 1·2	− 4·3	− 0·6	− 5·0	− 0·2	− 7·0	0·3	− 6·1	0·4	− 5·1	0·4	− 5·7	0·4	− 6·5	0·8	− 7·0	0·1	− 6·8	− 0·2	− 5·8	− 1·1	− 6·4	− 2·4	− 5·4	11
12	− 3·8	− 2·4	− 4·3	− 0·3	− 4·5	0·6	− 4·2	1·3	− 4·6	1·7	− 4·8	1·1	− 4·8	1·4	− 6·5	3·5	− 6·9	4·4	− 7·1	5·6	− 6·4	6·2	− 7·7	4·7	12
13	− 4·8	− 2·4	− 5·3	− 1·4	− 5·0	− 1·2	− 6·4	− 2·5	− 6·2	− 2·3	− 7·2	− 3·3	− 6·5	− 2·2	− 6·2	− 3·1	− 6·4	− 6·5	− 7·2	− 4·5	− 6·8	− 4·2	− 6·8	− 4·1	13
14	− 1·8	− 4·6	− 2·5	− 2·9	− 2·4	− 4·5	− 2·8	− 1·0	− 2·7	− 3·2	− 3·4	− 1·1	− 4·1	− 0·9	− 4·4	− 0·1	− 4·6	0·1	− 5·1	0·4	− 4·0	1·1	− 5·9	2·0	14
15	− 2·1	− 0·4	− 1·5	0·2	− 1·2	0·3	− 1·3	− 1·3	− 2·2	− 1·6	− 1·7	− 3·6	2·7	− 3·2	2·4	− 2·9	2·7	− 5·1	2·4	− 5·9	1·5	− 7·5	1·6	− 7·5	15
16	0·3	− 1·1	0·7	− 0·5	0·1	− 1·7	− 1·0	− 4·8	− 1·3	− 6·0	− 0·6	− 5·5	− 0·4	− 6·5	− 0·5	− 8·5	0·5	− 7·3	0	− 7·1	1·4	− 8·1	1·3	− 8·5	16
17	2·9	− 4·8	3·2	− 3·5	3·9	− 3·0	3·0	− 3·8	3·4	− 4·3	3·4	− 3·8	3·3	− 3·1	3·6	− 1·9	4·5	− 0·7	5·8	− 3·5	4·0	− 2·1	4·2	− 2·3	17
18	8·7	− 4·3	7·6	− 3·6	7·9	− 2·8	8·3	− 4·0	6·9	− 3·3	8·0	− 4·6	7·8	− 3·9	7·8	− 3·5	7·9	− 1·9	8·3	− 2·8	8·4	− 3·6	8·1	− 3·2	18
19	6·2	− 5·7	5·4	− 5·6	5·8	− 4·1	6·5	− 4·1	5·6	− 4·4	5·6	− 3·5	4·9	− 1·8	4·9	− 2·3	4·5	− 3·2	2·8	− 2·9	2·4	− 5·2	2·9	− 7·0	19
20	1·9	− 3·5	1·7	− 2·9	1·2	− 3·2	− 0·7	− 1·6	0·1	− 1·3	− 0·7	− 1·2	− 0·9	− 0·8	− 2·2	− 0·3	− 2·0	0·8	− 2·2	1·7	− 2·3	2·5	− 3·4	3·0	20
21	− 2·5	− 0·7	− 3·1	− 1·4	− 2·5	− 1·5	− 3·3	− 0·6	− 0·3	− 1·0	− 1·1	0·7	− 1·2	1·4	0·8	1·9	1·3	1·8	1·8	2·5	1·1	4·1	2·6	3·7	21
22	0·6	− 0·4	1·6	− 0·5	1·4	− 0·5	2·6	− 1·1	2·6	− 0·6	2·7	− 0·4	2·2	0·4	3·4	− 0·4	3·0	− 1·1	2·9	− 1·1	2·0	− 3·8	2·3	− 7·1	22
23	1·1	− 5·2	0	− 4·9	0·4	− 5·2	− 0·3	− 5·5	− 0·7	− 6·0	− 1·0	− 5·4	0·1	− 4·9	− 0·9	− 5·5	− 0·5	− 6·4	− 0·1	− 5·8	− 0·4	− 0·3	− 0·2	− 7·3	23
24	1·6	− 3·8	1·5	− 4·0	− 0·2	− 4·8	− 0·5	− 4·8	− 1·7	− 3·8	− 1·4	− 5·2	− 0·3	− 4·0	1·0	− 4·2	1·6	− 4·3	2·3	− 4·7	1·4	− 5·1	1·7	− 7·0	24
25	− 0·9	− 2·9	− 0·3	− 2·8	− 0·5	− 3·1	− 1·4	− 2·8	− 1·8	− 2·4	− 0·8	− 2·8	0	− 3·1	− 0·1	− 3·8	0	− 6·0	0·2	− 7·3	1·5	− 8·5	0·9	− 6·6	25
26	− 0·9	− 0·7	− 1·8	− 1·8	− 1·4	− 1·1	− 2·2	− 1·6	− 1·7	− 1·5	− 0·6	− 4·9	0·9	− 6·7	1·3	− 5·9	0·9	− 7·0	1·2	− 6·4	0·3	− 5·9	0·3	− 7·7	26
27	1·7	− 7·4	1·9	− 6·8	1·9	− 6·7	2·1	− 7·0	2·2	− 7·0	1·3	− 5·7	3·3	− 5·0	1·8	− 5·5	1·8	− 4·7	1·2	− 5·2	0·4	− 3·9	− 0·7	− 5·9	27
28	2·3	− 3·2	2·9	− 2·1	2·5	− 2·0	0·8	− 0·3	− 0·3	− 0·4	0·3	0·9	0·8	0·6	1·1	1·2	1·6	0·7	1·5	1·1	− 0·8	− 1·3	− 0·7	− 1·4	28
29	2·7	− 1·4	2·2	− 0·8	1·4	− 0·8	1·0	− 0·8	2·0	− 1·4	3·9	− 1·2	5·2	− 0·9	5·2	− 0·2	6·1	− 0·2	3·7	− 1·2	3·7	− 1·9	1·7	− 1·7	29
30	0·2	− 6·7	1·5	− 5·8	2·1	− 7·0	1·3	− 8·9	1·5	− 9·2	2·4	− 8·7	3·6	−10·0	5·6	−10·1	3·8	− 9·7	4·4	− 9·2	2·8	− 7·5	3·1	− 7·3	30
31	2·3	− 0·4	2·2	− 1·7	2·3	− 3·5	1·6	− 2·8	0	− 3·0	− 0·7	− 3·1	− 1·2	− 1·5	2·5	− 0·3	0	− 0·6	0·2	− 1·2	− 1·1	− 1·3	− 1·9	− 1·9	31
Means	0·33	− 2·57	0·19	− 2·19	0·22	− 2·18	− 0·04	− 2·17	− 0·10	− 2·30	0·07	− 2·49	0·58	− 2·16	0·74	− 2·16	0·80	− 2·55	0·79	− 2·63	0·51	− 2·72	0·16	− 3·57	Means.

AUGUST.

Hours -	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									
1	− 3·2	− 1·6	− 2·8	− 0·9	− 2·2	− 2·4	− 4·0	− 0·4	− 4·5	− 1·5	− 4·1	− 0·4	− 2·1	0·5	− 2·1	1·3	− 1·1	0·5	− 0·9	0·2	0·5	1·1	− 1·5	2·7	1
2	− 0·4	− 2·7	0·1	− 2·5	0·9	− 1·7	1·5	− 1·5	1·1	0	1·0	− 0·1	0·2	− 1·4	0	− 1·2	− 0·6	0·7	− 0·6	1·3	− 0·7	1·7	− 2·1	3·0	2
3	− 7·2	1·9	− 6·9	− 1·3	− 6·7	− 3·1	− 6·8	− 0·8	− 5·8	1·0	− 5·9	− 0·4	− 5·2	1·6	− 6·3	1·5	− 5·5	2·5	− 5·4	2·7	− 5·8	2·4	− 5·6	3·0	3
4	− 4·3	− 3·6	− 4·2	− 2·9	− 3·7	− 2·1	− 2·1	− 2·7	− 0·5	− 1·7	− 0·7	− 1·0	− 2·4	− 0·4	− 1·5	1·4	− 4·0	− 1·6	− 3·1	− 2·5	− 3·7	− 3·4	− 3·4	− 2·1	4
5	− 8·5	− 1·3	− 9·2	− 1·5	− 9·3	− 0·9	− 8·6	− 3·2	− 7·4	− 2·8	− 6·8	− 4·5	− 7·4	− 3·3	− 5·4	− 2·9	− 6·9	− 2·8	− 7·2	− 2·3	− 5·9	− 2·1	− 6·1	− 2·2	5
6	− 6·8	− 1·6	− 6·8	− 2·2	− 6·8	0·7	− 6·4	1·2	− 6·3	2·1	− 6·5	2·6	− 5·4	1·5	− 4·1	0·4	− 3·5	− 0·1	− 3·7	0·6	− 3·7	1·1	− 3·3	1·0	6
7	− 6·3	0·9	− 5·2	0·7	− 5·9	1·2	− 6·1	− 2·2	− 5·3	− 0·4	− 6·1	0·4	− 6·2	1·0	− 5·7	0·6	− 4·1	2·0	− 4·2	1·6	− 3·7	0·2	− 4·7	3·0	7
8	− 6·7	− 6·1	− 7·2	− 6·2	− 5·8	− 8·5	− 6·2	− 6·3	− 4·4	− 9·1	− 4·7	− 7·8	− 4·5	− 7·1	− 6·4	− 6·6	− 8·8	− 5·3	−10·1	− 4·0	− 9·9	− 3·5	− 8·3	− 4·8	8
9	− 4·0	− 5·1	− 2·8	− 4·3	− 2·9	− 4·8	− 3·1	− 3·3	− 4·1	− 1·9	− 4·2	− 1·9	− 4·0	− 0·9	− 2·6	− 2·7	− 2·5	− 2·4	− 3·7	− 5·3	− 3·2	− 5·6	− 3·1	− 6·2	9
10	2·7	− 9·0	2·9	− 8·0	3·6	− 7·3	3·3	− 7·0	3·9	− 6·5	4·5	− 5·0	3·8	− 5·2	5·2	− 3·9	5·1	− 3·2	4·2	− 2·4	4·6	− 2·7	4·3	− 1·4	10
11	− 2·0	1·7	− 2·6	1·6	− 2·0	1·4	− 2·0	2·2	− 2·5	3·5	− 1·5	3·4	− 0·8	3·7	− 1·2	6·1	− 0·3	6·0	− 1·3	5·4	− 0·8	5·1	− 0·6	4·7	11
12	− 2·2	− 2·6	− 2·2	− 3·5	− 1·6	− 3·9	− 0·4	− 3·9	− 1·5	− 4·3	− 1·3	− 4·1	− 1·3	− 2·8	− 1·2	− 1·7	− 1·4	− 0·7	− 0·9	− 1·1	− 0·5	− 1·0	− 1·8	1·1	12
13	− 3·8	6·2	− 4·3	3·8	− 4·8	3·8	− 5·6	4·9	− 4·8	3·5	− 4·1	4·0	− 3·8	4·0	− 3·8	4·1	− 4·2	3·7	− 3·7	3·9	− 3·3	4·5	− 2·9	6·6	13
14	− 5·2	11·3	− 5·7	10·1	− 6·8	8·4	− 7·0	5·9	− 6·3	5·8	− 6·1	5·2	− 4·7	5·1	− 4·2	4·5	− 4·3	3·4	− 3·9	2·9	− 5·5	1·6	− 5·9	1·6	14
15	− 9·3	− 0·3	− 8·3	− 0·3	− 9·7	− 0·4	− 8·2	0·3	− 7·9	0·6	− 6·3	1·3	− 6·0	2·4	− 6·9	0·6	− 5·5	− 1·1	− 5·1	− 2·9	− 4·3	− 1·6	− 3·7	− 2·8	15
16	− 4·2	− 0·2	− 3·1	− 0·7	− 2·6	0·8	− 1·3	0·4	− 0·5	0·9	0	1·4	− 1·4	1·5	− 0·6	1·5	− 1·8	1·6	− 1·5	2·0	− 3·3	1·4	− 3·7	0·4	16
17	1·3	− 4·0	1·9	− 3·3	1·7	− 3·7	2·0	− 4·2	2·3	− 4·1	1·4	− 3·7	2·7	− 4·1	1·7	− 5·1	1·2	− 5·0	2·4	− 4·7	2·0	− 5·3	1·7	− 1·1	17
18	0·7	− 7·6	2·1	− 8·7	2·3	− 7·8	3·6	− 6·9	4·3	− 5·9	4·7	− 6·2	3·7	− 5·7	3·9	− 3·5	3·1	− 4·5	3·3	− 4·7	4·1	− 3·7	3·8	− 2·1	18
19	4·6	− 4·8	6·7	− 5·0	7·2	− 2·1	6·9	− 2·1	7·0	− 5·1	7·3	− 5·7	6·0	− 5·4	5·5	− 4·3	4·5	− 3·6	4·4	− 3·5	4·6	− 2·8	4·7	− 2·4	19
20	4·9	8·1	4·6	7·4	5·1	7·5	5·5	7·2	4·6	7·2	5·0	6·6	4·8	6·1	3·8	7·2	3·9	5·5	5·2	5·3	4·9	5·3	3·4	4·5	20
21	2·8	− 1·0	2·5	− 0·1	2·3	0·1	1·3	− 1·1	0·9	− 0·8	1·7	− 1·1	0·6	− 1·1	0·4	0·8	0·3	0·5	0·3	0·5	− 0·4	0·2	− 1·5	1·8	21
22	2·9	1·6	2·9	0·8	3·2	0·9	2·8	0·3	2·8	1·0	3·1	1·5	3·4	1·2	2·1	1·1	1·2	1·3	2·4	1·2	2·5	0	2·7	− 0·6	22
23	− 2·6	3·5	0	1·1	0·4	1·5	− 0·2	1·5	− 0·5	1·2	− 0·6	0·9	− 1·4	1·9	− 2·4	2·1	− 2·7	1·6	− 3·5	3·3	− 3·6	4·9	− 3·6	5·1	23
24	1·1	− 0·2	− 0·6	− 0·8	0·5	− 2·8	− 0·9	− 3·2	− 1·8	− 1·7	− 2·9	− 1·6	− 2·0	− 1·1	− 3·3	− 1·5	− 2·3	− 1·8	− 2·4	− 1·9	− 2·6	− 1·4	− 3·2	− 1·6	24
25	− 3·6	− 2·7	− 2·9	− 3·4	− 2·2	− 2·5	− 2·3	− 6·0	− 2·3	− 6·5	− 1·0	− 5·6	− 0·9	− 2·9	− 2·4	− 3·4	− 2·5	− 3·3	− 2·2	− 4·1	− 3·0	− 2·9	− 4·9	− 3·0	25
26	− 3·5	− 6·3	− 3·6	− 4·7	− 1·9	− 3·3	− 3·4	− 2·7	− 2·4	− 1·5	− 1·0	− 0·9	− 1·4	− 1·5	− 4·5	− 1·2	− 4·2	− 0·9	− 6·0	− 0·6	− 6·6	0·2	− 6·4	0·6	26
27	− 6·8	− 7·1	− 4·6	− 4·8	− 2·6	− 2·7	− 3·6	− 2·8	− 2·7	− 2·4	− 2·5	− 3·1	− 4·0	− 3·4	− 2·0	− 6·1	− 1·0	− 4·8	− 0·7	− 6·7	− 2·3	− 8·0	− 1·5	−11·0	27
28	2·7	− 9·4	1·3	−10·0	1·4	−12·2	1·4	−11 5	1·5	−12·4	0·9	−10·5	4·0	− 8·3	3·4	− 6·5	3·9	− 7·3	3·3	− 6·9	1·6	− 7·9	1·7	− 5·4	28
29	− 0·4	− 8·5	2·7	− 6·8	2·2	− 5·6	1·7	− 4·9	2·0	− 0·9	1·9	− 4·2	1·2	0·3	− 0·6	0·1	− 1·9	− 0·7	− 2·7	+ 1·6	− 1·7	1·4	− 0·7	0·9	29
30	− 2·4	− 4·0	− 2·9	− 4·5	− 4·6	− 4·8	− 4·6	− 6·8	− 4·3	− 7·7	− 4·5	− 7·2	− 3·3	− 5·8	− 4·0	− 5·8	− 4·9	− 4·2	− 5·2	− 3·2	− 6·0	− 1·6	− 6·2	− 1·4	30
31	− 1·2	− 6·5	− 0·9	− 5·5	− 2·6	− 4·0	− 5·0	− 1·9	− 4·8	− 2·5	− 4·5	− 3·6	− 3·1	− 6·0	− 2·4	− 7·4	− 2·7	− 6·5	− 4·7	− 7·1	− 2·2	− 7·9	− 4·5	− 8·0	31
Means -	−2·29	−2·00	−1·91	−2·14	−1·74	−1·95	−1·86	−1·98	−1·60	−1·71	−1·41	−1·65	−1·30	−1·14	−1·54	−0·96	−1·73	−0·98	−1·85	−1·02	−1·87	−0·98	−2·16	−0·55	—

AUGUST.

Hours	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 0·2	0·7	− 0·3	0·5	0·3	1·2	− 0·4	2·1	− 0·4	2·1	− 1·0	1·8	− 1·0	1·5	− 1·8	0·6	− 2·0	− 0·7	− 1·7	1·1	− 0·4	0·3	− 0·1	− 1·7	1
2	− 2·5	2·7	− 1·0	3·1	− 2·9	3·3	− 2·2	1·8	− 2·2	4·0	− 4·2	3·3	− 3·0	3·2	− 3·6	2·9	− 4·2	3·6	− 5·1	4·7	− 6·1	3·9	− 7·2	2·8	2
3	− 5·4	3·7	− 6·0	4·0	− 5·7	3·9	− 6·1	4·1	− 5·2	3·7	− 4·8	3·7	− 6·1	4·8	− 3·1	1·8	− 2·0	1·7	− 3·4	0·7	− 4·0	− 2·1	− 4·2	− 4·8	3
4	− 4·4	− 2·9	− 5·3	− 3·1	− 5·3	− 4·4	− 3·4	− 4·0	− 4·9	− 4·3	− 6·0	− 1·5	− 5·6	− 0·6	− 6·6	− 0·5	− 6·9	− 0·2	− 7·7	0·3	− 7·6	− 1·7	− 7·7	− 2·6	4
5	− 5·2	− 2·6	− 4·1	− 3·9	− 4·9	− 2·8	− 5·3	− 4·0	− 4·5	− 3·3	− 4·1	− 3·4	− 4·3	− 2·5	− 4·6	− 2·6	− 6·0	0·3	− 7·2	1·0	− 7·1	1·7	− 6·3	1·5	5
6	− 2·9	1·4	− 2·3	0·2	− 2·1	− 0·1	− 1·2	− 6·3	− 0·1	1·1	− 0·2	0·9	0·4	0·9	− 1·4	3·0	− 2·1	2·6	− 6·1	3·3	− 6·2	4·4	− 5·9	0·6	6
7	− 4·5	0	− 5·7	− 1·6	− 4·7	− 2·1	− 4·1	− 3·2	− 4·8	− 7·5	− 5·4	− 6·4	− 6·0	− 6·6	− 8·2	− 7·8	− 9·3	− 6·4	− 8·0	− 6·3	− 7·8	− 6·2	− 8·5	− 5·4	7
8	− 7·1	− 5·2	− 6·1	− 8·2	− 6·7	− 8·9	− 5·4	− 8·1	− 4·3	− 8·3	− 3·2	− 9·4	− 4·5	− 6·5	− 7·1	− 8·6	− 5·7	− 9·1	− 5·7	− 6·4	− 5·0	− 4·9	− 4·6	− 5·0	8
9	− 3·6	− 6·1	− 3·4	− 7·2	− 2·4	− 7·1	− 2·3	− 6·7	− 2·0	− 6·8	− 1·9	− 6·4	− 2·1	− 6·7	− 0·3	− 7·9	0·8	− 7·3	1·5	− 9·9	1·7	−11·4	2·5	−10·2	9
10	3·0	− 1·0	3·2	− 1·2	3·5	− 1·4	2·8	− 0·5	1·9	− 1·2	1·4	− 1·7	1·2	− 2·9	1·3	− 2·8	2·8	− 2·0	0·9	− 0·1	− 0·3	0·1	0	1·3	10
11	− 1·1	4·6	− 0·3	2·5	1·5	3·2	0·2	0	1·0	− 2·0	0·5	− 2·3	1·0	− 0·9	1·0	− 3·0	0·4	− 2·5	0·2	− 1·8	− 0·6	− 1·9	− 0·6	− 1·7	11
12	− 1·3	0·5	− 2·0	2·2	− 2·2	4·1	− 2·5	4·5	− 2·7	5·1	− 2·4	6·3	− 1·7	5·4	− 1·8	5·9	− 2·2	4·7	− 0·6	3·1	− 1·0	4·2	− 2·4	3·1	12
13	*− 1·7*	*4·8*	*− 1·4*	*5·1*	*− 1·5*	*5·4*	*− 2·4*	*5·8*	*− 2·0*	*6·1*	*0·4*	*7·0*	*0*	*7·4*	*0·2*	*8·4*	*0·8*	*9·2*	*0·8*	*11·8*	*− 0·8*	*10·8*	− 3·1	10·5	13
14	− 6·3	1·1	− 5·1	2·4	− 6·3	2·9	− 7·3	3·6	− 7·0	3·3	− 6·6	1·2	− 7·0	1·9	− 8·0	1·1	− 9·0	2·1	− 9·0	1·3	−10·6	0·4	−10·3	1·4	14
15	− 1·7	− 0·8	− 0·6	− 2·1	1·2	− 2·9	0·5	− 3·0	1·9	− 3·9	− 3·2	− 3·5	− 6·1	− 3·6	− 5·0	− 4·0	− 5·5	− 4·1	− 6·2	− 3·1	− 5·9	− 2·6	− 4·7	− 8·0	15
16	− 3·6	0	− 1·8	1·1	− 3·2	− 3·9	− 1·8	− 3·9	− 0·3	− 3·2	0·5	− 2·7	0·8	− 3·1	1·9	− 1·4	1·1	− 0·6	1·4	− 2·0	2·1	− 2·5	0·8	− 1·2	16
17	2·2	− 4·5	2·1	− 5·1	1·4	− 5·2	1·1	− 5·4	1·0	− 6·9	1·1	− 6·8	2·0	− 7·8	1·5	− 6·6	0·8	− 7·7	− 0·1	− 8·0	− 0·1	− 9·6	0	− 9·7	17
18	3·2	− 3·1	3·4	− 2·6	2·6	− 2·2	2·0	− 1·5	1·2	− 1·2	2·9	− 1·8	2·2	− 1·7	3·0	− 2·3	3·3	− 2·2	4·8	− 3·3	4·3	− 4·5	4·6	− 5·2	18
19	4·9	− 2·7	4·1	− 2·1	5·0	− 3·6	5·7	− 2·8	5·6	− 3·6	7·3	− 1·5	8·1	1·6	6·4	3·7	6·1	5·8	4·5	6·7	4·1	8·1	4·0	6·7	19
20	2·9	4·6	3·1	3·4	4·8	2·6	4·8	3·3	4·7	2·9	4·4	1·8	5·7	1·2	4·2	2·4	4·0	2·1	3·2	− 0·1	4·0	0·1	3·3	0·2	20
21	− 2·8	2·1	− 2·3	2·6	− 2·6	2·2	− 1·7	2·0	− 1·5	2·5	− 1·1	3·8	− 2·8	3·5	− 0·3	4·0	− 0·9	3·1	1·7	0·3	2·8	0·1	3·0	0·2	21
22	1·8	0·8	0·3	2·2	1·0	1·1	1·1	2·5	1·5	2·9	1·2	3·2	0·3	3·1	− 0·4	3·5	1·0	3·0	− 0·3	3·0	− 1·2	4·2	− 2·3	4·1	22
23	− 3·2	5·2	− 2·4	4·3	− 2·8	4·1	− 2·4	3·3	− 2·2	3·3	− 1·4	3·1	− 1·8	3·0	− 2·0	3·3	− 1·6	2·8	− 0·6	2·2	0·1	0·7	− 0·6	− 1·5	23
24	− 2·4	− 1·6	− 2·4	− 1·0	− 2·9	− 0·6	− 3·1	− 1·9	− 2·0	− 1·7	− 1·9	− 1·8	− 2·8	− 2·4	− 2·2	− 3·2	− 2·1	− 0·3	− 3·5	− 1·7	− 1·8	− 3·4	− 1·6	− 4·2	24
25	− 5·8	− 2·5	− 5·5	− 2·1	− 4·4	− 1·1	− 4·1	− 0·5	− 3·6	0·1	− 4·7	− 0·4	− 4·7	− 0·7	− 5·2	− 3·1	− 4·7	− 3·9	− 3·7	− 4·3	− 3·4	− 5·8	− 3·8	− 6·2	25
26	− 5·4	0·7	− 6·6	0·8	− 8·9	− 4·1	− 6·6	− 7·8	− 7·6	− 9·1	− 7·3	− 8·9	− 6·0	−10·3	− 5·8	−10·9	− 6·0	−11·4	− 5·7	− 9·5	*− 5·2*	*− 8·6*	*− 5·9*	*− 6·9*	26
27	*− 1·6*	*−11·6*	*− 1·6*	*− 9·0*	*− 1·9*	*−10·6*	*0·6*	*−12·2*	*3·2*	*−12·9*	*2·3*	*−11·7*	*1·7*	*−12·7*	*5·6*	*−15·1*	*6·4*	*−13·4*	*7·4*	*−12·7*	*6·7*	*−12·2*	1·7	− 9·0	27
28	*2·8*	*− 5·3*	*1·3*	*− 5·8*	*0·8*	*− 6·8*	*0·2*	*− 6·9*	*− 0·4*	*− 6·5*	*− 0·6*	*− 6·1*	*− 1·7*	*− 5·8*	*− 1·0*	*− 7·2*	*2·5*	*− 8·1*	*1·5*	*− 7·6*	*1·0*	*− 7·4*	0·2	− 8·2	28
29	*− 0·1*	*1·4*	*− 1·2*	*0·1*	*− 0·9*	*0·2*	*− 0·8*	*− 1·1*	*0·2*	*− 8·7*	*1·7*	*− 3·8*	*0·6*	*− 3·6*	*0·9*	*− 2·3*	*0·7*	*− 2·6*	*1·2*	*− 2·5*	*− 0·6*	*− 2·7*	*− 0·9*	*− 8·1*	29
30	*− 7·5*	*0·1*	*− 7·1*	*0·3*	*− 8·7*	*1·1*	*− 7·8*	*− 0·9*	*− 7·9*	*− 5·0*	*− 7·5*	*− 6·2*	*− 6·6*	*− 6·1*	*− 4·6*	*− 9·3*	*− 8·9*	*− 8·2*	*− 1·1*	*− 7·8*	*− 1·7*	*− 7·6*	*− 1·6*	*− 5·6*	30
31	− 4·3	− 9·2	1·4	− 8·0	1·3	− 8·9	− 4·1	− 9·6	0·9	− 9·0	1·5	− 8·8	0·2	− 8·5	− 0·8	− 7·6	− 3·3	−10·5	− 2·8	− 9·3	− 2·6	− 8·9	− 2·1	− 9·6	31
Means	− 2·06	− 0·80	− 1·79	− 0·91	− 1·86	− 1·34	− 1·81	− 1·85	− 1·37	− 2·03	− 1·36	− 1·90	− 1·60	− 1·82	− 1·54	− 2·12	− 1·51	− 1·94	− 1·61	− 1·84	− 1·72	− 2·11	− 2·07	− 2·32	Means.

SEPTEMBER.

Hours -	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 4·1	−14·3	− 3·9	−13·2	− 4·6	−12·9	− 3·7	−14·1	− 1·8	−12·9	− 1·7	−11·3	− 2·7	− 8·4	− 2·1	− 6·4	− 3·0	− 5·4	− 4·1	− 5·0	− 3·8	− 4·6	− 4·5	− 4·5	1
2	− 6·9	− 1·0	− 6·6	− 1·9	− 6·9	− 5·3	− 6·1	− 6·5	− 6·9	− 5·9	− 6·1	− 5·5	− 7·0	− 3·9	− 6·2	− 4·3	− 5·3	− 4·7	− 4·0	− 4·7	− 2·1	− 5·3	− 2·2	− 5·0	2
3	− 7·1	0·2	− 8·1	0	− 6·4	1·0	− 7·9	0·8	− 6·1	− 2·4	− 6·9	− 2·3	− 6·9	− 0·7	− 7·6	− 1·4	− 6·5	− 2·2	− 5·4	− 3·3	− 5·1	− 1·9	− 4·3	− 1·9	3
4	− 9·5	− 1·9	− 9·8	− 1·2	− 9·7	0	−10·7	0·8	−10·2	0·5	− 8·6	− 2·3	− 8·3	− 3·1	− 9·2	− 4·0	−10·4	− 3·9	−12·0	− 4·0	−13·1	− 2·6	−11·3	− 2·8	4
5	− 6·0	− 5·6	− 5·8	− 6·5	− 6·2	− 6·2	− 4·1	− 7·9	− 2·9	− 7·7	− 3·2	−10·1	− 0·5	−13·6	− 0·7	−13·1	− 0·9	−14·2	− 0·6	−13·2	− 2·1	−12·2	− 1·3	−11·6	5
6	− 6·6	− 5·6	− 7·1	− 5·3	− 6·2	− 4·2	− 4·7	− 2·3	− 3·4	− 1·2	− 3·1	− 0·6	− 2·9	− 0·1	− 2·4	− 0·2	− 2·4	− 1·3	− 2·6	− 0·7	− 3·9	− 3·2	− 3·6	− 5·2	6
7	*− 0·1*	*4·3*	*0*	*− 2·2*	*0·2*	*− 2·7*	*0·6*	*− 1·2*	*0·1*	*− 3·1*	*− 2·0*	*− 3·1*	*− 2·2*	*− 1·9*	*− 2·3*	*− 1·1*	*− 1·8*	*− 1·0*	*− 2·3*	*0·2*	*− 1·4*	*− 1·4*	*− 0·3*	*− 1·1*	7*
8	*− 1·7*	*− 2·7*	*− 4·9*	*− 1·9*	*− 4·3*	*− 0·4*	*− 6·0*	*0·3*	*− 4·9*	*1·3*	*− 5·6*	*2·8*	*− 6·2*	*2·3*	*− 6·3*	*2·9*	*− 6·1*	*2·8*	*− 6·8*	*2·0*	*− 7·3*	*0·4*	*− 5·9*	*1·1*	8
9	−10·1	− 2·6	− 8·6	− 2·4	− 7·3	− 3·5	− 9·0	− 2·8	− 5·3	− 6·0	− 3·4	− 8·2	− 3·3	− 6·0	− 3·2	− 6·0	− 4·4	− 6·5	− 3·7	− 3·8	− 5·3	− 2·8	− 5·4	− 3·1	9
10	− 6·8	− 4·5	− 6·9	− 3·4	− 6·5	− 5·7	− 8·8	− 7·2	− 7·2	− 8·4	− 2·9	− 5·4	− 4·4	− 6·5	− 2·5	− 5·9	1·0	−10·0	0·8	− 5·6	1·6	− 6·2	0·7	− 6·5	10
11	0·7	− 7·8	2·7	− 7·5	3·5	− 6·9	4·5	− 5·6	3·1	− 5·3	4·2	− 5·9	3·5	− 6·6	2·5	− 6·7	4·4	− 7·1	4·6	− 6·0	3·7	− 6·6	3·2	− 6·5	11
12	− 1·6	− 2·6	− 2·1	− 1·9	− 1·8	− 0·5	− 1·2	1·1	− 2·6	2·0	− 4·5	0·1	− 5·9	− 0·7	− 5·0	− 2·8	− 5·2	− 4·4	− 4·9	− 3·9	− 5·0	− 4·8	− 6·3	− 4·6	12
13	− 5·5	− 9·5	− 4·8	− 9·0	− 4·3	− 9·2	− 3·2	− 8·4	− 3·0	− 9·1	− 1·2	− 8·4	− 1·3	− 7·6	− 1·4	− 7·8	− 0·7	− 7·0	− 1·1	− 6·0	− 1·3	− 5·2	− 0·4	− 6·3	13
14	− 5·3	2·0	− 5·3	0·4	*− 5·9*	*− 1·4*	*− 6·2*	*− 1·4*	*− 5·9*	*− 1·4*	*− 5·4*	*− 1·9*	*− 5·0*	*− 3·0*	*− 4·7*	*− 4·6*	*− 5·7*	*− 4·5*	*− 6·6*	*− 4·4*	*− 5·1*	*− 4·6*	*− 4·3*	*− 3·5*	14
15	− 1·7	− 4·2	− 2·6	− 5·6	− 2·6	− 9·0	− 0·2	− 9·3	0·7	− 7·2	− 0·8	− 6·4	− 0·1	− 6·5	− 0·8	− 5·2	− 0·2	− 4·6	− 0·1	− 6·2	− 0·4	− 6·4	0·2	− 4·2	15
16	1·6	− 7·5	2·7	− 7·9	4·4	− 7·4	5·9	− 4·6	5·6	− 6·4	5·1	− 5·9	3·7	− 4·8	2·6	− 5·0	3·3	− 3·4	0·7	− 3·8	− 0·6	− 6·0	0·2	− 4·9	16
17	− 2·9	− 4·4	− 2·8	− 5·4	− 4·2	− 6·2	− 4·7	− 5·7	− 6·9	− 5·2	− 4·4	− 3·2	− 4·5	− 2·6	− 3·3	− 2·3	− 3·5	− 2·0	− 5·2	− 2·2	− 4·7	− 3·4	− 4·7	− 3·1	17
18	−10·0	− 0·9	− 9·2	− 0·8	− 9·4	− 0·6	− 9·1	− 1·1	− 9·3	− 1·4	− 8·4	− 1·5	− 9·0	0·3	− 8·7	− 0·6	− 7·7	− 0·4	− 6·3	− 0·8	− 5·7	0	− 5·2	− 0·4	18
19	− 5·8	1·4	− 3·4	0·9	− 4·4	0·8	− 3·7	− 0·3	− 4·1	0	− 3·9	− 0·6	− 4·7	− 1·3	− 3·9	− 0·2	− 5·2	1·1	− 5·5	0·9	− 4·2	− 0·7	− 3·8	− 2·5	19
20	− 7·3	− 1·0	− 8·1	− 1·7	− 9·7	− 0·3	− 9·9	1·4	− 9·4	− 0·8	− 7·3	− 1·8	− 6·7	0·4	− 7·1	0·6	− 6·3	− 3·5	− 4·8	− 4·1	− 6·1	− 3·9	− 5·3	− 4·2	20
21	− 7·4	− 1·6	− 8·3	− 1·9	− 6·3	− 1·9	− 8·4	− 5·0	− 8·8	− 3·6	− 7·6	− 3·2	− 7·0	− 3·8	− 6·2	− 3·9	− 4·3	− 4·4	− 4·8	− 4·0	− 4·5	− 5·0	− 4·8	− 3·5	21
22	− 4·7	− 4·9	− 4·8	− 3·1	− 5·4	− 3·3	− 4·9	− 3·7	− 4·7	− 3·9	− 3·3	− 4·4	− 1·9	− 3·8	− 1·9	− 3·2	− 4·3	− 3·0	− 2·7	− 2·5	− 2·3	− 2·0	− 1·9	− 1·2	22
23	− 3·1	− 2·4	− 2·8	− 3·9	− 2·6	− 0·1	− 3·2	− 1·1	− 2·4	− 1·4	− 2·3	0·6	0·8	− 0·5	1·7	− 0·1	2·7	2·3	4·6	− 1·2	5·5	− 0·3	4·5	− 1·3	23
24	3·1	− 8·8	3·3	− 7·0	3·1	− 5·2	3·0	− 6·1	2·8	− 6·6	2·6	− 6·2	2·3	− 5·2	1·6	− 5·0	0	− 5·0	0·3	− 4·6	0·5	− 3·7	0·8	− 3·2	24
25	− 5·1	− 1·5	− 5·4	− 3·6	− 5·4	− 1·5	− 5·7	− 1·5	− 6·0	0·8	− 4·8	0·3	− 5·4	0·6	− 5·6	0·5	− 6·6	0·1	− 6·4	− 0·6	− 5·0	− 0·4	− 4·3	0·3	25
26	− 8·7	− 1·0	− 7·8	− 2·0	− 8·2	− 1·7	− 5·1	− 4·1	− 5·1	− 4·2	− 3·4	− 3·5	− 4·3	− 3·5	− 4·8	− 2·8	− 4·4	− 1·8	− 5·5	− 1·3	− 5·8	0·1	− 6·9	0·4	26
27	− 8·1	− 4·4	− 4·4	− 2·6	− 3·5	− 2·0	− 4·4	− 2·6	− 5·6	− 3·1	− 3·4	− 2·6	− 3·1	− 2·5	− 4·0	− 1·7	− 3·1	− 0·1	− 4·9	− 0·1	− 2·1	− 0·3	− 6·2	− 0·7	27
28	− 2·5	− 8·4	− 1·5	− 7·8	− 2·3	− 8·9	− 2·1	− 8·4	− 4·3	− 8·1	− 3·2	− 8·2	− 2·5	−10·1	0·6	− 9·2	− 1·1	− 7·6	− 1·0	− 8·0	− 2·0	− 6·5	− 0·2	− 6·4	28
29	3·2	0·9	1·0	− 0·6	2·5	− 1·2	1·7	− 1·6	1·5	0·1	2·5	− 1·6	1·6	− 0·7	− 0·1	− 2·4	0·9	− 2·3	1·3	− 2·1	− 0·7	− 2·8	1·0	− 3·2	29
30	− 0·2	− 3·7	3·8	− 3·7	5·3	0·1	5·5	− 0·4	5·9	− 1·1	5·7	− 0·7	5·0	− 2·2	5·1	− 2·0	4·0	− 1·5	0·9	− 3·6	− 0·6	− 1·5	− 0·8	− 2·1	30
Means -	− 4·34	− 3·47	− 4·05	− 3·76	− 3·84	− 3·54	− 3·73	− 3·62	− 3·57	− 3·72	− 2·91	− 3·55	− 2·96	− 3·32	− 2·86	− 3·18	− 2·76	− 3·26	− 2·94	− 3·15	− 2·96	− 3·29	− 2·84	− 3·20	Means.

* 0–11 h., 4 years.

SEPTEMBER.

Hours	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	É.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 4·5	− 4·0	− 4·5	− 2·3	− 4·1	− 1·9	− 4·5	− 1·8	− 3·4	− 1·4	− 3·7	− 2·7	− 2·5	− 2·4	− 3·1	− 2·8	− 3·8	− 4·4	− 5·3	− 5·4	− 6·4	− 4·4	− 6·9	− 3·0	1
2	− 0·2	− 4·8	− 0·8	− 3·7	0·8	− 2·8	0·4	− 2·3	0·6	− 1·9	0·1	− 2·0	0·2	− 2·7	− 2·1	− 1·9	− 3·5	− 1·1	− 4·4	0·5	− 5·7	− 0·2	− 6·4	− 1·9	2
3	− 5·1	− 0·2	− 5·2	− 0·5	− 5·4	− 1·1	− 5·1	− 0·3	− 5·3	− 1·0	− 5·6	− 0·8	− 6·4	− 1·5	− 7·5	− 2·0	− 8·0	− 1·1	− 8·1	− 1·8	− 9·9	− 1·2	− 9·9	− 2·2	3
4	−11·2	2·3	− 8·5	− 1·7	− 8·2	− 0·6	− 8·7	− 0·1	− 7·0	− 2·4	− 6·7	− 3·5	− 8·6	− 4·4	− 8·7	− 3·0	−11·1	− 3·0	− 9·6	− 3·8	− 7·0	− 4·6	− 4·8	− 5·3	4
5	− 2·1	−11·9	− 1·7	−10·2	− 3·0	−10·3	− 2·5	−10·6	− 2·3	− 8·1	− 3·0	− 8·0	− 4·1	− 8·2	− 5·5	− 7·0	− 6·4	− 6·1	− 5·4	− 5·4	− 5·4	− 4·3	− 7·0	− 5·5	5
6	− 4·4	− 3·6	− 4·4	− 2·3	− 3·8	− 2·2	− 3·9	− 1·8	− 4·4	− 2·1	− 3·3	− 1·7	− 3·0	− 0·8	− 3·8	− 0·6	− 6·3	− 0·1	− 5·1	− 0·8	− 4·7	− 0·7	− 2·8	− 1·1	6
7	− 0·6	− 1·8	− 0·3	− 2·5	− 0·3	− 5·1	− 2·3	− 5·7	− 3·0	− 6·7	− 1·4	− 9·5	− 0·1	− 8·1	− 0·5	−10·6	− 0·8	−11·4	− 1·8	−12·9	− 0·8	− 9·9	− 0·9	− 4·3	7
8	− 3·6	− 3·5	− 4·8	− 3·6	− 4·4	− 4·0	− 4·3	− 3·1	− 4·8	− 2·6	− 5·0	− 2·7	− 4·5	− 2·7	− 5·2	− 2·1	− 7·3	− 3·3	− 8·2	− 3·3	− 9·2	− 3·5	−10·4	− 0·5	8
9	− 3·8	− 4·4	− 3·9	− 4·8	− 5·0	− 4·2	− 2·4	− 3·6	− 2·3	− 3·1	− 2·6	− 2·7	− 3·0	+ 0·6	− 4·8	− 0·3	− 6·5	− 2·0	− 7·1	− 2·7	− 7·9	− 0·2	− 6·1	− 3·1	9
10	1·5	− 7·0	0·1	− 8·1	− 0·1	− 8·9	− 0·5	− 7·7	− 0·3	− 8·2	0	− 6·8	0·2	− 7·1	0·2	− 6·3	0·8	− 6·8	0·4	− 6·4	1·1	− 6·4	2·0	− 5·8	10
11	3·8	− 8·0	2·2	− 8·7	2·9	− 7·4	2·2	− 6·6	3·5	− 5·4	3·2	− 4·2	2·7	− 3·1	1·8	− 2·7	0·6	− 2·0	− 0·6	− 1·1	− 0·4	− 1·3	− 2·1	− 1·4	11
12	− 5·9	− 4·8	− 7·0	− 4·8	− 8·3	− 8·3	− 6·3	− 7·5	− 6·6	− 7·2	− 5·6	− 7·9	− 3·4	−11·4	− 4·4	−10·9	− 5·4	−10·8	− 6·1	−10·3	− 5·1	− 8·9	− 5·4	− 8.8	12
13	− 0·3	− 5·2	0·1	− 5·0	1·1	− 4·3	0·1	− 3·5	− 0·2	− 3·9	− 0·1	− 2·1	− 0·8	− 1·0	− 1·7	0·1	− 2·2	− 0·4	− 3·7	− 2·5	− 4·0	− 4·0	− 5·0	− 3·3	13
14	− 4·0	− 3·2	− 2·1	− 3·3	− 1·6	− 3·7	− 1·8	− 2·6	− 2·4	− 4·2	− 1·5	− 3·0	− 2·4	− 3·3	− 1·3	− 2·4	− 1·5	− 3·3	− 2·5	− 5·1	− 4·2	− 3·8	− 2·7	− 3·7	14
15	0·7	− 5·3	0·8	− 3·4	0·1	− 2·9	0·1	− 2·4	1·0	− 0·9	1·8	− 1·6	0·1	− 3·1	0	− 4·0	0·9	− 5·1	0·3	− 6·0	0·4	− 6·0	0·5	− 6·8	15
16	1·5	− 5·2	1·4	− 4·3	0·9	− 5·4	1·3	− 3·7	1·5	− 4·9	0·7	− 3·6	0·9	− 0·1	0·7	− 4·0	0·1	− 4·2	0·7	− 4·6	1·5	− 3·2	1·1	− 3·6	16
17	− 4·5	− 3·6	− 4·7	− 3·3	− 5·1	− 2·7	− 5·3	− 2·9	− 5·0	− 1·1	− 4·5	− 0·9	− 5·3	− 1·5	− 6·3	− 0·7	− 7·0	− 0·1	− 6·2	− 0·8	− 8·8	1·3	− 9·9	− 0·9	17
18	− 5·6	− 0·7	− 5·4	− 0·7	− 5·3	− 1·2	− 4·4	− 1·0	− 3·6	− 1·5	− 3·9	− 1·7	− 4·6	− 2·5	− 6·5	− 1·7	− 7·6	− 2·2	− 7·2	− 3·9	− 6·1	− 1·0	− 5·5	− 1·3	18
19	− 4·3	− 0·5	− 5·0	− 2·4	− 2·4	− 4·1	− 2·0	− 2·4	− 3·6	− 1·2	− 3·3	− 4·2	− 0·6	− 4·0	− 1·7	− 5·6	− 3·7	− 5·3	− 5·3	− 4·5	− 5·9	− 3·9	− 5·5	− 2·3	19
20	− 4·4	− 4·9	− 3·8	− 4·8	− 2·0	− 5·8	− 2·2	− 4·7	− 1·3	− 4·5	− 0·1	− 4·3	− 0·9	− 3·6	− 1·2	− 3·6	− 1·6	− 4·1	− 2·0	− 4·0	− 4·0	− 4·8	− 5·7	− 3·8	20
21	− 5·4	− 2·5	− 7·4	− 3·2	− 5·6	− 3·9	− 5·7	− 1·6	− 5·4	− 1·0	− 5·7	− 2·8	− 4·7	− 3·4	− 3·8	− 3·7	− 3·4	− 4·3	− 3·2	− 3·1	− 5·3	− 3·6	− 5·0	− 4·3	21
22	− 1·3	− 2·1	− 1·5	− 0·3	− 1·2	− 0·2	− 1·1	0·6	− 1·6	0·4	− 0·9	0·8	− 2·5	− 0·6	− 2·5	0	− 2·7	− 0·4	− 3·7	0·9	− 3·2	− 0·3	− 3·0	− 0·3	22
23	5·1	− 0·2	4·7	− 1·2	5·1	− 1·0	5·2	− 1·4	6·7	− 1·2	5·7	− 1·7	7·5	− 1·0	6·7	− 1·7	5·5	− 3·7	5·0	− 5·0	3·2	− 7·4	3·4	− 9·9	23
24	1·3	− 2·7	0·8	− 1·5	0·2	− 1·2	0	− 0·4	0·2	0·6	0·4	0·7	1·1	− 1·0	− 0·5	− 0·9	2·0	− 1·1	3·0	0·5	− 5·1	− 1·2	− 5·7	1·8	24
25	− 4·2	1·1	− 3·8	0·4	− 4·7	0·2	− 3·7	− 0·1	− 2·1	1·6	− 1·5	0·6	− 3·7	− 0·2	− 3·3	− 0·4	− 5·3	0	− 5·7	0·1	− 6·2	− 2·3	− 7·6	− 1·1	25
26	− 7·0	0	− 7·2	− 0·5	− 7·8	1·6	− 7·8	1·6	− 8·5	4·6	− 8·8	4·6	−10·2	4·7	−11·4	4·6	−11·0	3·3	− 7·6	− 1·3	− 6·7	− 1·7	− 7·0	− 2·3	26
27	− 5·9	− 2·2	− 3·1	− 2·3	− 2·8	− 2·9	− 3·7	− 1·6	− 3·4	− 3·5	− 1·8	− 6·6	− 2·5	− 6·8	− 1·9	− 7·1	− 2·2	− 9·0	− 2·0	− 8·8	− 2·7	− 8·2	− 2·8	− 7·9	27
28	0·4	− 6·8	0·9	− 5·7	0·9	− 6·3	0·8	− 3·8	1·3	− 1·5	0·4	− 0·1	0·7	0·1	0·9	1·5	1·7	2·2	2·5	2·5	2·4	2·0	1·5	2·1	28
29	0·6	− 3·5	1·5	− 3·6	0·5	− 3·5	0·1	− 2·5	− 0·2	− 2·5	− 0·9	− 1·4	− 0·6	− 1·2	− 0·3	− 1·6	− 0·3	− 1·8	0·4	− 1·8	0·6	− 3·6	0·9	− 3·9	29
30	− 0·8	− 2·0	− 0·5	− 2·1	− 0·1	− 1·4	− 1·0	0·2	− 1·7	1·4	− 1·1	1·3	− 1·2	1·4	− 0·2	0·5	− 0·3	1·1	− 1·0	1·3	− 2·5	0·8	− 2·5	0·2	30
Means	− 2·43	− 3·37	− 2·42	− 3·35	− 2·27	− 3·52	− 2·15	− 2·71	− 1·99	− 2·35	− 1·98	− 2·50	− 2·01	− 2·46	− 2·52	− 2·58	− 3·34	− 2·70	− 3·52	− 2·71	− 4·03	− 2·88	− 4·08	− 2·87	Means.

* 12–21 h., 4 years; 22 h., 3 years.

OCTOBER.

Hours -	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 4·1	0·5	− 4·2	0·7	− 5·6	− 0·7	− 5·0	− 0·7	− 4·5	− 2·4	− 5·8	4·0	− 4·7	4·6	− 4·8	4·6	− 4·9	8·7	− 4·2	7·4	− 4·1	8·0	− 3·8	9·8	1
2	− 5·4	− 2·9	− 6·3	− 3·1	− 6·0	− 4·4	− 5·7	− 3·9	− 4·3	− 4·9	− 4·2	− 4·7	− 3·9	− 4·3	− 4·7	− 3·8	− 3·1	− 3·4	− 2·3	− 2·5	− 3·8	− 1·2	− 4·5	− 4·3	2
3	−10·2	0·5	− 9·7	1·5	− 7·9	− 0·1	− 8·6	2·2	− 8·5	0·5	− 7·4	− 0·1	− 5·0	0·7	− 3·1	− 1·1	− 4·6	− 1·1	− 5·2	0·9	− 4·6	− 1·4	− 4·5	− 1·4	3
4	− 6·1	0·9	− 6·0	2·5	− 6·7	0·6	− 6·1	− 0·4	− 5·8	− 0·8	− 6·3	− 0·7	− 4·9	− 2·6	− 4·9	− 4·7	− 5·1	− 3·4	− 6·8	− 0·2	− 5·8	0·9	− 7·4	0·8	4
5	− 5·0	− 3·0	− 4·9	− 3·7	− 4·8	− 3·1	− 7·4	− 0·7	− 4·7	− 1·7	− 5·0	− 1·3	− 4·5	0	− 5·3	0·8	− 4·7	1·0	− 4·1	0·6	− 5·6	1·7	− 6·8	1·1	5
6	−12·8	− 1·0	−12·0	− 1·2	−11·4	− 0·3	−10·4	− 0·6	−10·8	− 0·3	− 9·9	0·3	− 7·3	0·6	− 7·4	3·6	− 7·0	5·4	− 6·5	6·2	− 5·7	− 3·9	− 5·0	− 4·4	6
7	− 3·3	− 6·3	− 3·7	2·5	− 2·1	− 6·5	− 2·9	− 7·3	− 2·1	− 9·9	− 2·2	− 8·2	− 2·7	− 7·4	− 2·9	− 6·2	− 3·1	− 7·1	− 2·4	− 7·8	− 2·1	− 6·2	− 1·2	− 7·1	7
8	2·1	0·8	1·9	0·6	0·6	− 1·2	1·5	0·9	1·4	1·6	0·1	2·1	− 0·7	3·1	− 1·4	3·8	− 2·5	4·8	− 2·4	4·2	− 3·6	3·9	− 2·8	3·7	8
9	− 5·4	8·1	− 3·4	6·9	− 3·5	5·8	− 4·1	6·5	− 3·9	5·1	− 2·8	4·3	− 1·5	2·6	− 3·4	3·8	− 1·6	3·7	− 0·3	4·5	0·3	4·9	0·6	4·9	9
10	− 4·0	4·0	− 4·4	3·6	− 4·0	3·2	− 4·5	3·8	− 4·8	3·6	− 5·5	4·1	− 4·3	4·6	− 4·1	4·5	− 4·7	4·1	− 5·7	3·5	− 4·4	2·9	− 4·3	4·4	10
11	− 2·5	1·7	− 2·4	2·2	− 2·9	2·7	− 3·3	3·5	− 1·6	4·0	− 1·2	5·8	− 3·6	5·4	− 3·5	4·4	− 5·5	2·3	− 5·5	2·5	− 5·1	1·3	− 4·6	1·7	11
12	− 4·1	− 3·3	− 1·7	− 4·6	0·3	− 0·7	− 2·7	− 0·3	− 5·1	− 1·9	− 5·0	− 3·6	− 5·5	− 3·8	− 2·5	− 2·7	− 2·8	− 5·2	− 2·8	− 4·6	− 2·1	− 5·4	− 2·4	− 5·9	12
13	5·3	1·6	4·6	− 0·9	5·0	1·4	4·6	0·5	3·5	1·2	3·1	1·8	2·9	1·2	2·7	− 1·6	3·8	− 1·9	3·0	0	3·5	− 0·4	3·1	− 1·0	13
14	− 1·4	3·6	− 2·0	4·5	− 0·6	3·9	− 0·9	3·6	− 0·7	− 1·5	− 1·0	− 1·4	− 2·7	− 1·6	− 3·0	− 1·2	− 1·6	− 0·6	− 4·4	− 0·5	− 3·2	− 2·5	− 3·6	− 1·8	14
15	− 3·4	3·8	− 4·6	4·2	− 4·1	4·0	− 4·9	4·9	− 4·8	3·9	− 6·4	2·9	− 6·3	0·7	− 8·1	1·8	− 7·6	0·8	− 8·9	− 0·2	− 6·5	− 2·9	− 4·9	− 4·5	15
16	− 8·3	− 5·1	− 7·5	− 3·9	− 7·2	− 2·2	− 6·2	− 4·8	− 4·8	− 3·3	− 3·3	− 2·9	− 3·0	− 3·7	− 4·7	− 2·8	− 6·2	− 2·4	− 6·7	− 2·7	− 6·7	− 1·3	− 7·3	− 2·6	16
17	− 8·3	− 1·6	− 8·1	− 2·3	− 5·6	− 1·8	− 5·8	− 3·1	− 6·1	− 2·4	− 5·8	− 1·9	− 6·5	− 0·7	− 6·2	− 1·3	− 5·9	− 0·5	− 6·4	1·0	− 6·0	1·5	− 6·2	2·2	17
18	− 6·5	2·7	− 7·2	3·5	− 7·4	4·7	− 8·6	4·9	− 7·1	6·7	− 7·5	4·6	− 7·2	4·5	− 8·3	2·6	− 7·4	− 1·6	− 7·9	− 2·2	− 8·2	− 1·9	−12·3	− 8·7	18
19	− 0·3	0·4	1·1	− 0·6	0·3	0·6	2·0	0·4	0·6	2·7	− 0·3	3·4	1·3	1·5	1·5	3·3	1·5	3·6	2·9	3·3	3·3	3·2	2·6	2·7	19
20	5·1	− 6·6	4·8	− 5·5	5·2	− 7·9	7·3	− 7·8	8·0	− 7·2	8·5	− 8·7	8·3	− 8·3	6·2	− 6·6	4·4	− 5·7	2·3	− 7·2	2·1	− 5·6	4·1	−10·8	20
21	− 1·1	− 8·6	− 2·8	− 7·3	− 3·2	− 7·8	− 0·1	− 5·8	− 0·8	− 6·1	0·4	− 4·7	− 1·2	− 3·8	− 2·5	− 3·2	− 1·2	− 3·4	− 1·2	− 1·0	0·6	− 1·1	− 1·6	0·9	21
22	2·3	− 5·6	4·3	− 6·1	2·4	− 5·9	2·6	− 7·5	2·7	− 4·6	1·9	− 5·4	1·0	− 4·8	− 0·9	− 4·1	− 1·1	− 2·9	− 1·2	− 2·6	0·3	− 2·8	− 1·2	− 2·1	22
23	− 1·6	− 4·7	1·3	− 3·6	2·2	− 3·4	2·3	− 2·1	1·5	− 0·5	0·4	− 0·2	− 0·9	− 1·1	− 1·0	− 0·7	− 0·1	− 1·3	0·2	1·4	− 0·1	− 0·9	− 1·3	0·8	23
24	− 5·1	4·1	− 3·8	4·3	− 4·2	4·7	− 3·2	4·1	− 1·8	4·4	− 0·9	4·5	− 0·7	5·8	0·6	4·8	0·4	4·2	0·6	3·8	− 0·8	1·0	− 2·9	1·6	24
25	0·9	− 5·8	− 0·1	− 5·6	0	− 3·7	− 1·8	− 5·4	1·5	− 5·2	2·1	− 5·0	5·3	− 4·1	2·3	− 2·0	2·3	− 2·6	1·9	− 2·0	0·8	− 1·2	− 0·2	− 2·4	25
26	− 4·6	− 1·2	− 3·8	− 0·1	− 4·5	1·7	− 7·7	1·8	− 5·6	− 9·5	− 6·3	0·4	− 3·5	3·8	− 1·0	5·2	− 1·4	4·9	− 0·5	3·4	− 1·2	2·5	− 1·7	1·5	26
27	11·7	− 5·9	5·2	− 6·1	5·0	− 6·5	5·8	− 6·5	7·3	− 7·1	8·3	− 8·3	10·0	− 1·6	10·0	− 1·5	8·2	− 2·8	6·8	− 1·8	7·4	0·5	6·0	− 0·1	27
28	5·0	−10·8	5·1	−12·8	3·0	− 9·8	2·2	− 8·4	− 1·4	− 5·7	− 3·5	− 6·3	− 4·3	− 6·2	− 5·7	− 5·7	− 8·7	− 4·0	− 7·2	− 4·7	−11·0	− 3·6	− 9·7	− 3·0	28
29	− 5·1	− 1·1	− 4·4	− 1·5	− 2·6	− 1·3	− 3·2	− 1·3	− 4·7	0·1	− 3·6	2·2	− 1·6	3·2	− 0·8	1·4	− 3·1	0·7	− 1·2	− 2·8	− 0·2	− 4·4	− 1·9	− 7·8	29
30	5·9	−22·8	6·3	−19·1	8·2	−17·4	4·3	−18·1	7·6	−17·7	1·9	−14·3	− 0·7	−15·6	1·8	−13·9	1·2	−12·6	0·9	−13·4	0·6	−13·2	1·0	−11·4	30
31	2·5	−10·8	2·6	− 9·1	4·4	− 8·2	4·6	− 8·7	4·8	−10·1	4·8	− 9·9	3·6	− 9·1	2·0	− 7·4	0·1	− 5·5	2·2	− 5·5	1·7	− 4·1	1·3	− 5·0	31
Means -	− 2·19	− 2·40	− 2·12	− 1·94	− 1·86	− 1·92	− 2·13	− 1·82	− 1·77	− 2·23	− 2·01	− 1·43	− 1·77	− 1·17	− 2·04	− 0·80	− 2·32	− 0·77	− 2·18	− 0·61	− 2·25	− 0·95	− 2·57	− 1·40	Means.

OCTOBER.

Hours -	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 8·3	− 7·1	− 2·6	− 0·4	− 2·9	2·2	− 2·8	3·6	− 4·1	4·8	− 7·3	7·7	− 9·1	8·2	− 9·2	6·3	− 8·5	6·8	−11·3	4·4	− 9·0	1·3	− 5·1	− 3·1	1
2	− 4·1	− 6·2	− 3·2	− 5·7	− 2·8	− 4·5	− 1·8	− 2·5	− 3·4	− 1·6	− 3·0	− 1·0	− 3·5	− 1·6	− 5·8	− 0·8	− 6·2	− 1·1	− 8·6	0·2	− 8·9	− 0·2	− 8·5	− 0·3	2
3	− 3·9	− 0·2	− 5·9	0·8	− 4·8	2·8	− 5·5	0·5	− 6·3	1·4	− 5·2	− 1·7	− 4·5	− 0·1	− 3·8	− 2·1	− 6·5	− 0·6	− 5·5	0·7	− 8·0	2·5	− 7·0	3·2	3
4	− 6·4	− 0·1	− 5·0	− 0·8	− 4·6	− 0·8	− 6·7	− 2·0	− 4·9	− 3·5	− 5·6	− 2·3	− 4·8	− 4·0	− 4·8	− 4·0	− 5·0	− 4·3	− 3·9	− 4·5	− 3·8	− 3·4	− 5·3	− 1·9	4
5	− 6·8	2·3	− 7·9	2·7	− 9·3	3·4	− 8·2	2·9	− 9·2	1·9	− 8·3	2·4	− 7·4	1·7	− 7·6	0·6	− 9·6	0·3	− 9·9	0·2	−10·3	− 1·4	− 9·4	− 2·2	5
6	− 5·3	− 3·8	− 3·9	− 0·9	− 6·8	− 3·2	− 7·0	− 4·1	− 6·5	− 3·3	− 6·4	− 4·9	− 7·1	− 4·8	− 6·3	− 5·9	− 5·8	− 5·7	− 6·0	− 6·8	− 5·4	− 5·8	− 4·1	− 7·3	6
7	− 1·9	− 6·5	− 3·3	− 5·4	− 0·9	− 5·1	− 1·0	− 4·9	− 0·5	− 4·0	− 1·3	− 4·0	− 0·8	− 2·8	− 1·1	− 3·3	0·2	− 1·0	0·6	− 1·6	1·6	0·3	1·6	0·4	7
8	− 2·9	4·2	− 3·0	4·1	− 2·6	4·2	− 2·1	3·8	− 2·0	4·6	− 2·0	5·2	− 1·7	5·0	− 2·0	5·3	− 3·2	7·1	− 3·5	6·9	− 3·4	7·2	− 3·9	7·2	8
9	0·8	5·0	1·1	6·6	− 0·7	7·4	− 0·5	7·0	− 2·8	6·7	− 2·7	6·8	− 3·8	6·9	− 4·0	6·5	− 2·8	6·7	− 1·6	7·0	− 3·0	5·5	− 3·7	5·5	9
10	− 5·3	2·8	− 5·8	0·8	− 6·3	0·8	− 4·8	− 2·4	− 3·8	0·1	− 4·4	− 8·0	− 4·5	− 0·8	− 3·8	0·9	− 4·3	− 0·4	− 3·5	1·6	− 2·7	1·4	− 3·9	1·8	10
11	− 4·1	− 0·2	− 3·4	− 0·4	− 0·7	− 1·7	− 2·4	− 2·3	− 3·8	− 1·8	− 2·4	− 1·4	− 3·1	0·5	− 2·8	− 2·1	− 2·2	− 2·3	− 3·9	− 3·5	− 4·5	− 1·1	− 4·9	− 4·1	11
12	− 4·3	− 6·2	− 3·8	− 6·0	− 4·4	− 4·9	− 0·8	− 4·2	0·2	− 2·6	0·6	− 3·0	0·1	− 3·4	1·5	− 2·5	− 0·2	− 0·3	1·2	0·6	4·1	1·8	4·9	0·9	12
13	3·3	0·6	4·2	− 4·0	4·1	− 3·7	2·2	0·7	3·0	1·4	2·3	2·0	2·5	2·6	2·8	2·6	3·1	4·0	2·3	3·9	1·2	2·5	0·5	2·6	13
14	− 5·4	− 1·6	− 6·9	− 0·5	− 4·0	− 1·9	− 3·3	− 4·1	− 4·2	− 5·2	− 3·5	− 4·4	− 3·2	− 6·8	− 1·9	− 4·6	− 1·8	− 5·0	1·1	− 4·9	2·3	− 4·1	− 0·8	2·2	14
15	− 3·2	− 5·3	− 3·8	− 5·0	− 4·5	− 5·1	− 6·0	− 4·8	− 6·1	− 4·5	− 5·3	− 6·0	− 4·6	− 6·1	− 6·0	− 6·0	− 5·1	− 7·9	− 5·2	− 8·0	− 8·9	− 6·4	− 8·2	− 4·8	15
16	− 8·1	− 2·0	− 8·3	− 0·9	− 8·5	0·1	− 8·2	− 0·8	− 9·3	− 0·6	− 8·8	− 1·5	− 8·7	− 1·6	− 7·2	− 2·5	− 9·2	− 2·2	− 8·7	− 3·1	− 8·7	− 2·9	− 7·6	− 2·4	16
17	− 5·2	3·3	− 5·0	3·1	− 5·7	1·8	− 7·2	2·8	− 6·7	5·0	− 5·4	4·8	− 6·5	5·4	− 7·7	7·1	−10·3	7·8	− 7·5	7·6	− 6·9	7·6	− 6·8	5·9	17
18	−11·7	− 0·8	−12·0	− 1·4	− 9·9	1·2	− 7·2	1·4	− 5·4	1·1	− 8·2	1·7	− 3·3	1·5	0·3	0·9	− 1·1	1·0	1·0	1·3	− 0·8	0·6	− 0·6	0·5	18
19	2·9	0·5	2·4	0·3	4·7	− 1·9	4·9	0·6	5·7	0·1	6·2	− 1·0	6·2	− 0·3	6·5	− 1·5	6·3	− 0·1	6·9	− 0·4	4·5	− 1·8	4·1	− 5·3	19
20	1·3	−13·4	2·7	− 7·8	− 0·8	− 8·1	− 1·7	− 6·3	− 3·6	− 7·7	− 0·9	− 6·1	− 0·3	− 5·5	− 3·6	− 7·6	− 0·2	− 6·8	− 3·0	− 5·1	− 2·6	− 7·5	− 1·9	− 8·6	20
21	− 3·4	1·4	− 2·7	2·2	− 2·4	3·2	− 1·3	3·5	− 1·6	3·8	− 2·2	3·8	− 0·7	6·3	− 0·4	7·1	− 0·2	6·4	1·5	3·7	3·6	− 0·8	1·8	− 5·0	21
22	− 1·4	− 2·8	0·8	− 1·7	− 0·6	− 1·4	0·3	− 0·7	− 0·6	− 0·5	− 0·5	− 1·5	2·3	− 6·4	1·7	− 6·0	5·5	− 6·2	6·2	− 4·3	3·6	− 3·2	3·3	− 5·4	22
23	− 1·5	0·5	− 1·5	2·3	− 3·0	2·1	− 3·1	1·6	− 4·8	1·0	− 3·8	2·2	− 5·7	4·2	− 5·2	5·0	− 8·1	6·3	− 7·5	6·3	− 7·7	4·8	− 7·9	3·9	23
24	− 1·9	3·6	− 2·1	3·4	− 0·6	− 0·7	3·3	− 3·0	2·1	− 3·6	6·4	− 4·7	4·3	− 4·8	3·3	− 3·7	2·1	− 3·6	0·9	− 3·4	0·6	− 3·8	− 0·8	− 3·6	24
25	− 1·4	− 1·4	− 3·9	− 0·1	− 3·2	− 0·6	− 3·6	− 1·1	− 1·3	− 3·5	− 1·3	− 6·9	− 2·2	− 4·9	− 2·2	− 4·7	− 3·8	− 0·3	− 3·1	− 0·6	− 2·1	− 2·5	− 1·9	− 2·1	25
26	− 1·5	4·0	− 1·5	2·7	− 0·7	2·9	− 0·1	1·4	2·4	0·9	7·3	− 4·1	11·2	− 1·9	11·6	− 1·5	11·8	− 1·7	8·8	− 3·1	8·9	− 4·0	8·7	− 5·8	26
27	6·1	0·7	5·4	− 1·3	7·5	− 8·2	6·6	− 9·2	5·5	−10·6	6·2	− 6·6	6·0	− 7·7	5·8	− 7·9	6·8	− 7·2	5·8	− 8·8	5·9	− 9·9	6·2	− 9·3	27
28	− 9·5	− 3·7	− 4·2	− 8·3	− 3·1	− 8·6	− 5·8	− 7·6	− 4·9	− 7·5	− 4·2	− 8·5	− 5·6	− 8·9	− 6·9	− 8·0	− 5·4	− 5·3	− 4·4	− 5·8	− 5·8	− 3·4	− 3·8	− 1·9	28
29	1·3	− 8·5	− 1·1	−12·7	1·6	−12·9	2·8	−14·1	6·7	−15·8	6·2	−12·5	6·1	−15·8	5·4	−16·2	6·7	−15·0	4·6	−17·6	4·3	−17·6	4·2	−23·0	29*
30	0·5	−13·8	0·8	−12·6	1·5	−12·6	4·1	−11·5	2·3	−13·8	3·5	−14·6	3·1	−13·5	3·4	−13·5	2·7	−14·6	2·6	−13·6	2·9	−11·8	2·7	−12·8	30
31	− 0·6	− 4·4	1·6	− 0·9	0·3	− 0·6	0·6	− 2·4	0·3	− 3·8	0·5	− 4·9	0	− 4·6	− 1·2	− 6·7	0·5	− 7·5	2·6	− 9·0	− 0·3	− 8·5	− 2·0	− 6·7	31
Means -	− 2·80	− 1·91	− 2·77	− 1·54	− 2·39	− 1·75	− 2·12	− 1·88	− 2·17	− 1·91	− 1·73	− 2·29	− 1·59	− 2·03	− 1·65	− 2·22	− 1·74	− 1·64	− 1·65	− 1·93	− 1·96	− 2·08	− 1·94	− 2·63	Means.

* 14-22 h., 4 years.

NOVEMBER.

Hours -	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 1·8	− 7·3	− 3·3	− 9·7	− 3·7	−10·2	− 5·3	−11·6	− 2·5	−13·2	− 3·1	−12·5	0·9	−13·8	1·7	−14·9	0·4	−15·5	1·7	−13·4	2·6	−15·0	2·2	−14·4	1
2	− 4·1	−10·6	− 2·2	−11·9	− 1·3	−12·2	− 1·7	−11·7	− 2·6	−11·5	− 2·7	−11·2	− 2·8	−11·4	− 0·6	− 9·5	− 1·4	− 9·7	− 1·1	−10·5	− 2·3	−10·1	− 1·4	−10·6	2
3	− 0·3	−17·6	0·9	−19·3	3·7	−18·4	2·2	−15·8	1·2	−14·4	1·7	−14·4	− 0·1	−12·9	2·6	−10·8	− 0·7	−10·5	− 0·4	−10·5	− 1·4	−11·5	− 2·2	−11·2	3
4	− 7·1	−19·6	− 7·2	−19·1	7·5	−19·3	7·6	−17·9	9·5	−17·5	11·4	−11·5	11·1	−10·5	10·0	− 7·7	9·8	− 7·4	9·8	−10·5	9·9	−10·0	10·4	− 9·8	4
5	7·6	−11·9	6·2	−13·3	6·1	−12·9	5·8	−12·6	5·9	−12·9	12·8	−13·3	14·1	−14·0	13·3	−12·3	13·9	− 9·8	13·9	− 9·9	12·1	− 9·4	11·7	− 9·8	5
6	1·8	−14·6	1·6	−15·9	0·5	−19·8	0	−19·6	0	−21·0	0·9	−21·6	0·1	−22·2	4·4	−19·8	6·1	−17·7	5·1	−17·8	3·2	−16·0	3·5	−15·5	6
7	3·6	− 7·5	4·3	− 8·5	8·1	− 9·2	7·9	− 7·6	6·4	− 8·1	5·5	− 7·5	6·3	− 7·8	4·4	− 7·3	4·6	− 7·4	3·8	− 8·2	3·6	− 6·6	3·3	− 7·3	7
8	− 3·1	−12·9	− 2·3	−10·6	− 3·3	−11·3	− 2·0	−14·7	− 4·5	−15·3	− 4·5	−15·2	− 5·4	−17·9	− 5·0	−16·8	− 5·9	−17·2	− 2·6	−15·8	5·4	−13·5	6·5	−11·7	8
9	3·5	−11·7	3·7	−11·2	5·0	−10·8	5·0	−10·0	3·3	−10·0	3·3	−10·1	2·2	− 9·4	2·3	− 8·6	− 0·4	− 9·8	0·6	− 9·0	− 0·1	− 9·5	− 0·7	− 9·5	9
10	− 0·3	−18·1	− 0·4	−15·5	0·2	−13·6	0·1	−13·5	− 0·3	−11·7	− 1·8	−11·9	− 2·3	−10·6	− 2·3	−10·1	− 3·7	− 8·8	− 5·2	− 7·7	− 5·1	− 6·5	− 7·3	− 5·4	10
11	0·8	−18·7	− 1·2	−18·5	0·9	−17·1	− 0·1	−15·3	1·5	−19·3	5·5	−16·6	1·2	−13·4	2·5	−10·3	1·0	−11·4	3·0	−10·7	2·8	−11·1	3·7	− 9·5	11
12	− 4·1	− 7·9	− 4·4	− 7·4	− 4·4	− 7·5	− 5·7	− 7·4	− 5·8	− 9·0	− 7·1	− 7·3	− 6·7	− 5·2	− 7·2	− 4·7	−10·6	− 5·0	− 9·5	− 6·2	− 9·2	− 6·3	− 9·0	− 7·2	12
13	− 2·0	− 9·4	− 4·5	− 9·5	− 1·6	− 8·8	− 0·3	− 6·8	− 1·4	− 4·3	− 1·3	− 4·7	− 2·1	− 2·4	− 2·4	− 3·5	− 1·9	− 0·1	− 2·0	− 0·4	− 2·6	− 0·1	− 1·5	1·2	13
14	− 1·9	12·1	− 1·8	12·3	− 2·3	11·8	− 2·3	9·4	− 3·8	9·3	− 4·8	9·8	− 5·0	7·5	− 1·0	3·4	− 1·3	4·6	− 0·5	2·2	− 1·7	3·5	− 4·1	1·8	14
15	7·5	− 4·4	7·6	− 4·2	8·2	− 5·5	7·2	− 5·7	6·0	− 3·7	5·2	− 4·6	4·6	− 4·9	4·3	− 4·0	2·8	− 4·3	− 3·0	− 4·6	4·5	− 4·2	5·6	− 3·9	15
16	2·6	− 0·8	0·8	1·0	1·5	1·5	2·1	0·7	− 0·7	0·4	0·9	− 0·1	0·4	1·1	1·0	0·3	0·8	1·0	2·1	1·3	− 0·5	1·8	0·2	1·6	16
17	− 7·8	− 4·9	− 7·1	− 7·1	− 5·7	− 6·8	− 6·4	− 7·2	− 4·9	− 7·1	− 2·5	− 8·6	− 0·7	− 6·5	− 1·6	− 6·8	− 1·2	− 6·9	− 2·3	− 8·5	− 1·5	−10·8	− 0·8	− 9·7	17
18	4·1	− 0·9	2·8	− 3·7	2·2	− 2·7	2·8	− 5·8	2·2	− 6·0	1·3	− 8·1	− 1·0	− 8·5	− 1·1	− 7·9	− 0·6	− 7·5	0·4	− 6·3	0·2	− 5·5	1·5	− 3·9	18
19	6·2	− 9·3	6·7	− 8·4	7·2	− 7·5	7·5	− 7·7	7·8	− 8·2	7·2	− 5·6	8·4	− 4·7	6·4	− 3·8	6·8	− 4·1	5·1	− 2·6	2·4	− 3·1	4·0	− 5·7	19
20	− 2·3	− 0·8	− 1·2	0·1	− 0·7	− 1·4	− 1·9	− 2·1	− 3·1	− 1·1	− 2·4	− 1·4	− 4·5	− 0·7	− 2·3	0·2	− 2·4	− 0·8	− 2·4	2·5	− 3·3	2·8	− 5·0	5·4	20
21	− 6·2	3·5	− 5·5	+ 3·6	− 5·8	4·6	− 6·4	6·4	− 7·3	6·9	− 7·7	4·7	− 9·1	4·3	− 9·1	3·6	−10·9	4·9	− 8·1	2·0	− 5·5	1·4	− 6·7	+ 1·1	21
22	− 4·1	− 3·4	− 2·0	− 4·8	− 2·1	− 4·7	− 3·3	− 4·2	− 2·9	− 4·2	− 1·7	− 3·3	− 0·8	− 3·1	2·6	− 4·7	2·3	− 3·5	3·3	− 2·9	2·9	− 1·7	3·0	− 0·8	22
23	6·0	− 9·6	5·6	−13·4	6·8	−12·2	5·8	−11·8	4·9	−11·7	3·5	− 9·7	3·6	− 8·8	2·3	−10·4	2·5	−10·4	1·4	−11·4	1·0	−12·1	1·1	− 7·7	23
24	− 2·7	− 5·9	− 3·5	− 4·8	− 5·1	− 3·1	− 5·9	− 1·8	− 6·2	− 0·7	− 5·4	0·2	− 7·1	− 0·2	− 7·8	0·3	− 1·2	1·3	− 2·3	1·5	− 3·0	1·5	− 1·4	1·0	24
25	−12·2	1·6	−10·9	0·7	− 9·4	1·4	− 8·6	2·2	− 8·8	1·2	− 5·5	0·7	− 3·5	2·4	− 4·1	4·6	− 0·3	4·3	1·3	+ 5·6	− 1·4	5·0	1·0	4·7	25
26	− 0·8	0·4	0·1	− 0·5	− 1·1	− 2·9	− 0·9	− 2·5	− 3·9	− 1·0	− 2·7	− 5·5	− 1·0	− 4·6	− 1·3	− 3·2	− 0·1	− 5·1	2·2	− 5·2	1·4	− 3·7	3·6	− 4·3	26
27	− 3·4	− 2·4	− 4·7	− 3·3	− 0·7	− 5·6	− 0·7	− 6·4	− 2·2	− 6·2	− 3·3	− 5·1	− 2·0	− 4·2	− 3·7	− 4·3	− 5·2	− 3·6	− 5·0	− 2·3	− 9·3	− 3·2	− 9·0	− 1·8	27
28	− 6·6	− 1·9	− 6·4	− 1·1	− 5·9	− 2·6	− 5·9	− 3·0	− 4·2	− 2·7	− 3·9	− 2·1	− 2·5	− 1·1	− 2·4	0·8	− 3·0	− 0·5	− 3·7	0	− 3·5	0·1	− 3·9	− 0·1	28
29	−11·1	7·7	−10·5	7·4	−10·9	7·5	−10·8	5·0	−10·6	6·1	−12·4	7·0	−12·4	7·6	−13·6	7·0	−13·4	5·2	−13·4	6·6	−13·6	7·2	−13·7	6·8	29
30	−23·0	7·3	−23·1	8·5	−22·6	7·1	−23·2	8·7	−21·8	9·1	−22·3	7·2	−21·6	7·8	−22·0	6·4	−22·6	7·6	−21·9	6·6	−19·4	6·1	−19·7	6·5	30
Means -	− 2·04	− 5·98	− 2·06	− 6·27	− 0·96	− 6·41	− 1·25	− 6·34	− 1·63	− 6·23	− 1·20	− 6·08	− 1·26	− 5·60	− 0·99	− 5·16	− 1·19	− 4·94	− 0·79	− 4·87	− 1·11	− 4·68	− 0·84	− 4·32	Means.

NOVEMBER.

Hours	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	1·6	−13·3	− 0·6	−10·9	− 1·3	−11·0	− 1·2	−11·2	− 1·7	−10·1	− 2·3	− 9·8	− 2·1	−10·2	− 2·5	−10·3	− 2·2	− 9·6	− 2·9	− 8·7	− 4·0	−10·0	− 2·6	− 9·6	1
2	1·0	−12·8	− 0·4	−12·6	1·3	−13·9	1·9	−17·6	3·1	−16·3	2·6	−14·6	2·2	−16·2	0·7	−17·3	1·8	−13·5	2·1	−18·5	2·7	−17·1	0·9	−17·6	2
3	− 1·7	−11·0	− 1·4	−11·0	− 2·0	−11·4	− 1·9	−13·4	5·2	−15·3	6·9	−14·5	6·6	−14·9	7·8	−19·6	5·7	−20·3	7·6	−17·3	2·4	−20·4	4·4	−17·8	3
4	10·1	− 7·9	10·4	− 9·2	9·4	− 7·1	8·9	− 5·1	8·0	−13·6	8·0	−12·1	8·1	− 9·1	8·6	− 8·3	6·2	− 8·5	6·7	− 7·4	8·0	−10·3	10·4	−13·7	4
5	11·0	− 8·6	10·1	− 8·5	9·0	− 7·1	7·7	−10·9	6·3	−12·1	5·6	−13·4	4·3	−13·9	4·9	−12·5	6·0	−12·8	2·0	−12·3	0·7	−14·6	1·5	−16·0	5
6	2·0	−15·0	1·8	−13·0	3·7	−13·6	3·9	−11·7	0·9	−11·0	0·7	− 9·4	0·4	− 7·2	− 0·1	− 7·2	0·4	− 6·5	3·6	− 5·7	4·1	− 7·3	2·4	− 5·5	6
7	3·6	− 7·3	4·3	− 5·4	4·2	− 5·4	4·3	− 6·9	3·2	− 6·1	− 0·8	− 5·0	0·8	− 2·1	− 1·8	− 2·4	− 0·7	− 1·3	− 0·5	− 1·9	− 3·9	− 6·3	− 4·4	− 9·2	7
8	6·6	−10·3	7·2	−11·2	7·6	−12·1	6·9	−12·2	6·9	−12·7	7·1	−13·5	6·7	−11·6	4·4	−12·9	5·0	−14·2	5·3	−11·9	4·5	−11·7	3·7	−11·9	8
9	− 1·1	−10·0	0·5	−10·9	4·8	−14·9	2·5	−16·5	0·9	−14·7	1·4	−15·0	2·1	−15·3	1·6	−15·9	0·7	−15·1	1·3	−15·7	0·6	−16·9	0·4	−15·0	9
10	− 8·0	− 5·9	− 7·6	− 4·1	− 8·0	− 5·5	− 8·1	− 6·3	− 9·3	− 5·1	− 7·1	− 6·6	− 3·7	− 9·6	− 2·5	−13·3	− 1·7	−16·2	− 0·4	−16·8	− 1·7	−16·8	− 0·2	−17·5	10
11	4·6	−10·4	3·8	−10·1	2·7	− 9·7	4·2	−10·0	3·7	− 8·6	3·1	− 8·5	3·0	− 9·1	1·8	−10·2	0·8	− 8·9	− 0·3	− 9·2	− 2·0	− 7·6	− 2·6	− 7·5	11
12	− 9·1	− 8·1	− 9·8	−11·3	−10·0	−10·2	− 8·5	−10·0	− 7·5	−10·2	− 5·6	−10·2	− 6·2	−11·8	− 3·3	−12·8	− 2·6	−12·4	− 2·5	−10·3	− 4·2	− 9·0	− 2·7	− 9·4	12
13	− 1·7	1·9	− 1·8	3·3	− 0·9	5·4	0·1	5·4	1·2	6·4	− 0·8	6·6	− 0·9	7·2	− 2·6	7·4	− 2·7	8·1	− 2·1	7·2	− 2·7	10·6	− 3·8	11·4	13
14	− 2·2	1·2	− 2·5	2·1	− 1·4	1·5	0·1	0·9	0	2·4	− 0·3	0·8	2·3	− 4·0	2·8	− 4·1	3·8	− 5·3	5·0	− 4·0	5·4	− 3·1	5·3	− 3·5	14
15	6·4	− 0·7	6·4	− 0·8	5·7	− 1·4	10·1	− 2·6	9·0	− 1·7	8·6	− 1·8	6·4	− 1·0	3·8	− 1·1	4·2	− 0·8	3·3	− 0·7	4·4	0·4	5·6	− 1·1	15
16	− 0·4	1·0	− 0·4	0·9	− 0·7	0·1	− 1·4	1·1	− 2·0	1·2	− 3·9	− 1·1	− 3·8	− 1·6	− 4·6	− 2·1	− 6·3	− 2·5	− 8·2	− 4·3	− 6·8	− 3·5	− 8·7	− 3·4	16
17	− 1·0	− 8·9	− 0·2	− 9·7	3·0	− 7·9	2·9	− 7·9	4·9	− 9·1	5·5	− 9·0	5·0	− 7·2	2·7	− 7·8	1·5	− 7·2	5·0	− 4·3	4·3	0·7	3·4	− 0·6	17
18	2·9	− 6·7	3·0	− 7·6	6·0	− 8·1	5·1	− 9·4	5·5	− 7·2	5·0	− 6·4	6·1	− 6·5	5·3	− 7·0	4·2	− 9·0	2·8	− 8·7	1·5	− 7·3	2·1	− 6·7	18
19	4·5	− 6·0	3·5	− 6·4	4·7	− 5·7	5·3	− 4·9	5·7	− 3·9	5·2	− 2·2	4·1	− 0·9	3·2	− 0·6	1·1	− 0·8	− 0·3	− 1·3	− 1·2	1·1	− 1·2	− 0·6	19
20	0·9	5·7	− 6·7	6·2	− 6·8	6·4	− 6·0	7·2	− 5·8	7·3	− 8·1	4·2	− 6·1	3·8	− 6·0	2·6	− 5·3	0·6	− 5·6	3·0	− 6·9	2·1	− 5·2	2·0	20
21	− 5·8	0·6	− 5·3	0·8	− 5·2	0·7	− 3·6	0·7	− 4·1	− 1·0	− 2·8	− 2·3	− 2·9	− 4·0	− 3·7	− 3·6	− 3·2	− 4·2	− 2·8	− 2·7	− 4·1	− 2·8	− 5·0	− 2·7	21
22	3·6	− 0·6	3·5	− 0·4	5·3	− 1·9	4·2	− 4·5	4·8	− 6·0	3·6	− 5·6	5·2	− 5·9	6·3	− 7·0	7·7	− 6·5	7·5	− 5·7	7·0	− 5·4	6·8	− 5·6	22
23	0·9	− 9·1	− 2·0	−10·3	− 2·3	− 9·1	− 1·9	− 7·9	− 0·8	−10·4	0·2	− 9·7	0·5	−10·7	0·4	− 9·2	0·1	− 8·8	− 1·9	− 5·9	− 2·1	− 5·2	− 2·0	− 5·2	23
24	− 3·4	0·6	− 4·8	0·7	− 6·0	− 0·5	− 6·5	− 0·4	− 7·4	0	− 8·5	0·3	− 9·5	3·4	−10·4	2·5	−10·2	4·9	−12·7	4·0	−11·2	3·1	−10·9	2·8	24
25	2·1	2·9	2·5	2·5	3·6	2·5	3·7	3·6	1·8	1·1	0·2	1·6	− 0·1	1·5	− 1·3	0·4	− 2·4	− 1·2	− 0·5	− 1·3	0·8	− 0·1	0·8	1·1	25
26	− 3·4	− 3·1	2·8	− 4·9	4·0	− 4·2	4·1	− 4·5	2·4	− 4·4	4·0	− 3·9	2·7	− 3·3	0·9	− 2·3	− 0·4	− 0·9	0·1	0·5	− 1·4	− 1·0	− 1·9	− 1·2	26
27	−10·1	− 2·7	− 9·7	− 3·2	− 9·2	− 3·2	− 9·7	− 2·3	− 9·4	− 2·2	−10·4	− 2·6	− 9·7	− 5·3	− 9·1	− 4·4	− 7·6	− 3·3	− 6·6	− 4·7	− 6·1	− 3·2	− 5·7	− 2·7	27
28	− 3·5	− 0·5	− 5·7	− 0·4	− 5·6	0·1	− 5·0	0·9	− 3·8	0	− 6·3	2·3	− 6·2	3·1	− 7·1	2·9	− 4·6	2·5	− 7·8	5·2	− 7·8	5·2	− 9·8	6·3	28
29	−17·3	7·6	−15·6	8·9	−17·2	10·0	−17·4	9·3	−16·5	7·5	−16·0	6·3	−16·1	5·2	−17·4	5·1	−17·3	6·7	−17·7	8·2	−20·1	7·5	−20·9	8·5	29
30	−20·3	7·2	−19·0	6·1	−18·6	6·4	−17·6	5·2	−17·5	7·0	−20·1	8·2	−20·9	8·1	−13·6	9·4	−13·5	8·6	−11·7	7·1	− 6·2	2·6	− 8·8	0	30
Means	− 0·91	− 4·34	− 1·12	− 4·35	− 0·67	− 4·36	− 0·43	− 4·73	− 0·41	− 4·96	− 0·84	− 4·90	− 0·72	− 4·99	− 0·99	− 5·39	− 1·05	− 5·28	− 1·07	− 4·80	− 1·53	− 4·88	− 1·62	− 5·06	Means.

DECEMBER.

Hours -	0		1		2		3		4		5		6		7		8		9		10		11		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	− 5·9	− 1·0	− 3·8	− 1·9	− 4·4	− 0·9	− 4·8	0·5	− 3·6	− 1·2	− 1·4	− 2·0	− 2·2	− 2·0	− 1·6	− 3·4	− 2·4	− 2·8	− 1·0	− 2·7	0·9	− 3·3	− 0·3	− 2·3	1
2	2·2	3·7	4·2	3·9	4·8	1·7	1·2	5·4	1·2	5·6	0·5	2·2	0·7	0·2	2·8	− 0·8	1·1	0·1	− 2·6	− 1·4	− 1·2	− 1·5	− 5·4	2·4	2
3	−13·3	3·3	−11·6	1·2	−10·8	− 2·2	−11·2	− 1·4	−10·1	− 2·8	− 4·7	− 9·7	− 2·9	− 8·4	− 2·6	−12·1	− 0·8	−15·1	− 1·0	−12·2	− 1·8	− 9·3	− 5·7	− 9·2	3
4	−11·4	− 2·2	− 8·3	− 1·9	− 8·4	− 5·1	− 9·0	− 3·2	− 4·3	− 4·0	− 5·4	− 4·2	− 6·0	− 5·0	− 7·8	− 4·3	− 9·4	− 4·4	− 8·3	− 5·0	− 6·4	− 4·9	− 5·8	− 4·7	4
5	−10·1	−11·7	− 7·7	−12·0	− 8·2	−12·9	− 8·8	−14·5	− 2·7	−10·3	− 1·4	−11·2	0·9	− 7·1	0·5	− 9·7	0·2	− 7·8	− 1·7	−11·5	− 1·9	− 9·6	− 3·6	−10·1	5
6	− 3·5	− 2·4	− 1·8	− 2·5	− 3·0	− 2·7	− 5·0	− 0·8	− 4·2	− 1·7	− 3·9	− 4·3	− 3·2	− 2·1	− 2·5	− 2·3	− 3·5	− 3·5	− 3·9	− 4·1	− 6·7	− 3·0	− 6·5	− 3·5	6
7	0·3	− 8·5	1·8	− 8·2	1·8	− 8·4	1·7	− 9·8	1·1	− 9·6	6·8	− 9·2	7·2	−11·4	3·7	−10·4	2·4	− 9·4	2·4	− 8·8	1·9	−10·6	1·4	− 9·6	7
8	2·3	− 6·2	1·8	− 5·9	0·8	− 6·9	− 0·6	− 6·4	− 1·0	− 5·4	− 3·0	− 6·2	− 3·8	− 6·1	− 3·7	− 6·2	− 2·8	− 6·3	− 3·1	− 5·6	− 3·4	− 5·2	− 6·8	− 6·5	8
9	−10·8	−12·0	−10·7	−13·4	− 9·5	−14·7	− 9·9	−15·4	− 9·0	−15·4	− 8·8	−17·7	− 7·4	−16·7	− 5·7	−18·9	− 6·8	−17·5	− 7·2	−18·2	− 6·6	−19·8	− 8·2	−19·1	9
10	2·2	−16·4	2·6	−15·0	1·1	−13·3	1·5	−15·0	10·1	−18·5	9·0	−18·5	7·2	−16·9	5·1	−17·6	5·7	−16·6	10·0	− 9·0	8·0	− 7·2	2·8	− 7·2	10
11	1·3	− 1·8	2·9	− 1·6	2·9	− 0·7	− 1·0	− 1·5	− 1·1	− 0·5	0·7	− 0·3	0·4	− 1·4	0·1	− 0·8	− 0·6	− 0·9	− 1·2	0	− 2·8	− 0·6	− 2·7	− 0·3	11
12	− 0·2	−13·8	− 1·6	−15·7	− 1·2	−14·3	4·2	−12·4	5·6	− 6·6	2·0	− 6·5	− 0·2	− 5·0	− 1·0	− 5·8	− 0·1	− 6·0	− 0·9	− 7·2	1·2	− 8·7	− 0·9	− 9·8	12
13	0·6	− 8·6	− 1·0	− 6·6	0·7	− 8·3	− 2·8	− 5·6	− 2·0	− 5·8	0·6	−11·9	− 0·2	−12·0	− 2·0	−10·3	− 3·0	−11·1	− 2·0	−12·1	− 3·0	−13·2	− 4·6	−13·4	13
14	− 6·6	− 8·5	− 4·7	− 6·0	− 2·8	− 9·8	− 4·4	− 8·5	− 3·0	− 7·9	− 4·4	− 4·5	− 5·5	− 4·6	− 4·3	− 4·6	− 4·1	− 5·7	− 5·1	−12·5	− 3·5	− 6·0	− 5·7	− 7·1	14
15	− 8·3	− 9·7	− 8·3	− 9·9	− 7·8	−10·8	− 8·1	− 9·0	− 8·6	− 7·9	− 9·1	− 7·4	− 8·7	− 7·4	− 8·7	− 7·8	− 9·8	− 6·3	− 8·4	− 6·6	− 9·1	− 7·1	−11·1	− 8·9	15
16	− 1·4	−10·8	− 1·0	−11·1	0·5	−12·9	1·8	−11·8	1·6	− 9·7	5·9	− 7·3	8·0	− 8·6	7·4	−10·6	7·3	−12·7	7·3	−11·8	10·6	−12·5	14·2	−10·1	16
17	1·1	− 9·0	1·5	− 7·4	1·9	− 9·8	1·0	− 9·6	0·9	−10·7	0·3	− 8·3	0·4	− 9·3	0·5	− 9·5	0·3	− 8·6	− 0·4	− 9·5	0·6	− 9·8	− 3·1	− 6·5	17
18	− 2·5	− 4·4	0·6	− 4·1	− 0·2	− 3·8	− 0·4	− 5·0	− 0·9	− 6·6	1·8	−10·0	2·1	−13·4	2·1	−13·7	2·9	−11·5	2·1	−12·4	2·2	−12·0	− 0·6	−12·3	18
19	− 1·4	−12·6	− 2·5	− 9·7	− 4·5	− 9·8	− 4·5	− 8·6	− 5·2	− 7·2	− 3·8	− 8·1	− 6·0	− 8·1	− 5·4	− 7·6	− 7·6	− 7·8	− 7·2	− 6·7	− 8·4	− 5·4	− 8·7	− 6·2	19
20	− 4·9	− 5·3	− 2·0	− 2·3	− 0·9	− 1·6	− 0·9	− 0·1	− 1·1	2·7	− 2·2	2·9	− 2·5	4·0	− 1·8	2·2	− 5·8	1·8	− 6·8	2·1	− 9·1	4·8	− 9·7	3·5	20
21	−13·5	0·3	− 9·6	− 0·5	− 9·9	0	− 8·6	− 3·1	− 8·6	− 3·6	− 7·8	− 3·3	−10·4	− 5·0	− 8·2	− 6·6	− 4·9	− 1·4	− 4·5	− 1·1	− 0·7	− 4·7	1·2	−10·2	21
22	− 6·0	− 6·7	− 8·5	− 8·8	− 5·5	−10·2	− 5·7	−11·5	− 7·6	− 9·4	− 7·6	− 9·6	− 8·1	−11·0	− 9·2	−15·0	−11·3	−13·5	−10·5	−10·4	−14·1	− 8·8	−14·4	−10·6	22
23	− 8·9	−14·0	− 7·6	−10·5	− 9·7	− 5·5	−10·3	− 6·3	−11·9	− 5·9	−10·5	− 6·2	−11·7	− 5·0	−11·9	− 7·2	−12·3	− 4·9	−11·6	− 6·6	−12·9	− 7·1	−13·7	− 9·4*	23
24	−17·6	− 7·7	−18·5	− 8·9	−16·8	−13·1	−13·5	−11·8	−10·5	−11·5	−10·8	− 9·8	−11·1	−12·1	−10·8	−16·3	− 8·0	−11·9	− 7·4	−12·1	− 7·5	− 9·9	− 7·1	− 9·9	24
25	−13·7	− 8·2	−12·2	− 7·9	−10·0	− 8·3	− 8·8	−10·3	− 9·3	− 9·4	− 9·6	−10·3	− 9·5	− 7·9	− 9·1	− 6·1	−10·5	− 7·0	− 9·6	− 7·4	− 9·7	− 7·1	− 9·9	−10·6	25
26	− 7·5	−12·4	− 7·5	−11·0	− 8·1	− 9·4	− 7·8	− 7·5	− 7·6	− 6·2	−10·2	− 4·5	−10·9	− 2·4	− 6·7	− 2·6	− 4·6	− 4·7	− 1·3	−10·8	− 2·3	− 9·6	− 3·2	− 9·9	26
27	− 3·2	−10·1	− 1·9	− 7·3	− 2·3	− 9·8	2·9	−11·3	3·0	−12·2	4·1	−10·5	3·2	−14·4	4·7	−16·7	1·0	−16·7	7·2	−19·6	5·1	−25·3	3·2	−24·0	27
28	3·3	− 9·9	1·0	−10·5	1·4	−10·3	0·7	− 9·0	0·7	− 8·0	− 0·4	− 6·9	0·4	− 5·4	− 0·9	− 4·2	− 0·9	− 2·6	− 3·7	− 2·2	− 3·1	− 4·6	− 2·6	− 6·1	28
29	−12·1	− 6·9	−11·3	− 7·1	−11·1	− 6·5	−11·2	− 5·8	− 7·8	− 5·4	− 8·0	− 7·2	− 4·9	− 7·3	− 6·1	− 8·5	− 4·6	−10·2	− 5·3	−11·1	− 4·4	−10·5	− 1·9	− 8·6	29
30	0·5	− 4·6	2·8	0·8	5·7	2·4	6·1	− 0·4	4·3	− 0·3	5·4	− 1·1	4·6	− 1·1	3·0	0·6	1·0	− 0·2	0·6	0·2	− 2·3	1·8	− 3·3	3·1	30
31	− 0·3	− 0·8	− 1·4	0·1	− 0·4	− 1·3	− 0·4	− 1·3	− 1·2	− 1·7	− 0·7	0·9	− 4·1	2·4	− 3·1	3·1	− 0·7	− 0·3	− 2·2	0·4	− 3·2	0·5	− 5·5	− 0·9	31
Means -	− 4·82	− 7·06	− 4·01	− 6·51	− 3·67	− 7·04	− 3·76	− 6·81	− 2·99	− 6·36	− 2·45	− 6·80	− 2·72	− 6·79	− 2·67	− 7·54	− 3·00	− 7·37	− 2·82	− 7·61	− 3·18	− 7·43	− 4·15	− 7·68	Means.

* 11 h., four years.

DECEMBER.

Hours	12		13		14		15		16		17		18		19		20		21		22		23		Hours.
Components.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	Components.
Days.																									Days.
1	1·9	− 2·5	0·7	− 5·2	3·7	− 5·7	5·7	− 4·9	3·1	0·1	1·1	1·0	1·8	1·8	3·4	− 0·6	3·7	4·2	1·3	− 0·8	0·7	1·1	0·8	2·2	1
2	− 5·8	1·8	− 8·1	2·0	− 7·6	− 3·0	− 8·5	1·2	− 6·7	− 1·9	− 7·7	− 1·6	− 5·1	− 1·9	− 3·6	− 0·8	− 4·1	− 1·2	− 5·8	1·4	− 8·0	0·8	−11·7	4·1	2
3	− 4·8	− 9·2	− 5·5	− 6·7	− 9·4	− 7·1	− 8·4	− 4·9	− 8·8	− 5·2	− 9·0	− 2·5	− 9·9	− 2·2	− 9·9	− 2·9	− 9·4	− 0·5	−10·2	− 1·4	− 8·6	− 2·1	− 9·2	− 3·0	3
4	− 8·8	− 1·5	− 9·6	− 1·0	−12·0	− 1·3	−14·1	− 1·4	−13·8	− 0·6	−14·9	− 2·9	−14·4	− 5·0	− 8·8	− 6·6	−10·5	− 5·7	−10·8	− 5·8	− 8·1	− 9·0	− 9·6	− 9·4	4
5	2·2	−10·0	0	− 9·8	− 0·2	−12·6	1·0	−11·0	− 0·1	−13·7	1·6	−13·2	− 0·8	−11·8	0·6	−10·5	0·1	− 9·7	− 1·4	− 5·6	− 2·3	− 5·6	− 1·4	− 6·3	5
6	− 6·8	− 1·7	− 6·7	− 2·8	− 5·7	− 0·6	− 2·8	− 3·1	− 3·7	− 4·1	− 1·5	− 3·5	− 0·9	− 4·0	− 2·3	− 4·2	− 1·0	− 6·4	0	− 7·6	− 1·2	−10·7	− 0·4	− 6·0	6
7	0·4	−10·6	− 0·3	−13·0	− 0·9	−13·4	6·7	−10·8	4·0	− 9·7	3·3	−10·6	3·1	−13·0	3·3	−11·8	7·2	−11·5	7·3	− 9·4	4·6	−10·8	3·8	− 7·8	7
8	− 7·7	− 7·3	− 7·7	− 6·1	− 7·9	− 5·0	− 8·5	− 5·1	− 9·1	− 5·4	− 8·8	− 6·6	−10·8	− 6·2	−12·4	− 6·6	−11·9	− 7·1	−11·2	− 7·6	−11·9	− 5·9	−13·7	− 7·4	8
9	−12·3	−19·9	− 7·2	−17·3	− 4·0	−17·3	− 1·6	−17·8	− 0·6	−18·5	2·2	−17·6	− 0·8	−15·7	− 0·4	−14·8	− 0·9	−15·1	− 3·0	−15·8	− 0·2	−13·8	− 0·1	−16·7	9
10	3·5	− 6·1	0·4	− 8·4	− 1·3	− 8·2	− 1·6	− 8·2	0	− 9·5	− 0·8	− 8·1	− 1·2	− 5·4	− 3·0	− 5·7	− 4·9	− 5·3	− 6·4	− 5·2	− 3·8	− 2·8	2·5	− 2·1	10
11	− 3·9	− 0·3	− 4·9	− 1·7	− 1·5	− 3·9	− 0·3	− 4·6	− 1·4	− 5·9	− 1·4	− 8·7	− 1·6	− 9·0	− 0·9	−10·6	− 1·4	−11·1	− 0·5	−13·2	− 1·6	−13·2	0·3	−13·1	11
12	− 0·9	−15·7	1·9	−13·2	2·8	−15·5	3·7	−17·2	4·3	−15·6	4·2	−17·4	3·7	−15·9	4·2	−15·5	1·1	−13·0	0·6	−12·3	0·1	−11·5	2·0	−11·3	12
13	− 5·2	−12·4	− 3·8	−14·3	− 5·8	−12·6	− 7·7	−13·6	− 5·0	−14·6	− 4·4	−14·0	− 5·6	−14·8	− 8·0	−17·5	−10·0	− 9·6	− 4·6	−13·7	− 3·0	−14·5	− 6·5	− 8·6	13
14	− 5·3	− 8·5	− 4·6	− 7·9	− 3·6	− 6·9	− 2·9	− 8·4	− 3·8	− 8·9	− 2·9	− 9·5	− 3·4	−10·2	− 5·4	− 9·3	− 6·3	− 9·7	− 7·0	− 7·9	− 7·8	− 8·0	− 9·2	− 8·3	14
15	− 9·9	− 7·1	− 9·2	− 5·2	− 5·6	− 9·5	− 4·7	− 8·5	− 5·9	− 8·8	− 5·0	− 8·8	− 4·4	− 9·1	− 3·8	−10·8	− 1·4	−13·5	0·8	−12·5	− 1·8	−13·2	− 4·2	−12·9	15
16	14·1	− 8·3	12·9	− 9·0	9·8	− 7·4	9·6	− 9·1	8·1	− 9·5	6·9	− 7·5	4·6	−10·5	4·9	− 8·7	3·2	− 7·1	1·6	− 5·9	2·0	− 6·9	1·9	− 8·5	16
17	− 3·7	− 4·0	− 4·7	− 4·6	− 4·1	− 3·6	− 4·6	− 5·3	− 2·0	− 7·1	− 1·9	− 6·3	− 2·7	− 6·8	− 1·7	− 6·3	− 2·2	− 6·7	− 1·7	− 6·2	− 2·7	− 6·3	− 2·8	− 4·9	17
18	1·6	− 8·0	0·8	− 8·2	− 0·2	− 8·9	− 1·9	− 5·7	− 2·7	− 9·4	0	−11·8	− 0·7	−11·5	0·3	−13·0	− 0·7	−11·6	− 1·2	−10·9	− 2·2	−11·7	− 1·1	−11·5	18
19	− 9·3	− 5·3	−10·8	− 5·9	−11·1	− 6·5	− 8·3	−10·0	− 8·0	−10·5	− 8·3	−13·3	− 8·8	−11·5	− 4·9	−11·3	− 5·4	−11·2	− 5·1	−10·5	− 7·6	− 7·3	− 7·5	− 6·6	19
20	−10·4	3·6	− 9·2	3·6	− 8·8	3·3	− 6·8	0·9	− 7·9	0·6	− 7·5	0·2	−10·7	− 0·4	−11·5	− 0·2	−12·5	− 2·7	−13·2	− 0·9	−13·1	− 0·9	−13·8	− 1·4	20
21	1·5	−10·2	1·4	− 7·6	− 1·6	− 9·0	− 0·3	−10·4	0·7	− 9·1	0·9	− 7·8	− 2·2	− 5·5	− 2·2	− 5·7	− 2·4	− 7·0	− 3·3	− 4·1	− 3·1	− 5·8	− 4·0	− 4·8	21
22	−14·6	− 9·7	−14·9	−10·0	−12·3	−15·6	−10·8	−13·9	−10·0	−12·8	−10·7	−13·0	− 8·4	−13·0	− 9·0	−14·1	− 9·3	−13·8	− 8·8	−12·9	− 9·1	−11·6	− 9·5	−11·8	22
23	−12·9	− 7·9	−12·1	− 9·5	−14·0	−11·8	−14·2	−12·5	−13·6	−12·2	−13·3	−11·8	−12·6	−14·5	−12·2	−13·7	−11·0	− 9·2	−12·0	−11·0	−13·7	− 9·2	−16·3	− 7·0*	23
24	− 8·1	− 9·3	− 9·0	− 9·2	− 9·1	− 8·2	−12·8	− 7·1	−11·5	− 4·9	−13·3	− 8·6	−10·2	− 1·6	−11·1	− 1·1	−12·1	− 1·0	−12·9	− 2·1	−12·5	− 0·7	−13·3	− 7·0	24
25	− 8·9	− 6·8	− 9·2	− 7·7	− 7·5	− 5·1	− 7·9	−13·0	− 8·0	− 0·6	− 7·1	−13·5	− 4·2	−14·6	− 5·4	−13·1	− 5·4	−11·7	− 5·4	−13·0	− 5·1	−13·3	− 6·7	−13·8	25
26	3·3	−12·6	0·7	−11·8	1·7	−10·5	− 1·6	−11·0	0·2	−11·5	0·1	−13·1	0·3	−13·3	0·1	−10·9	0·6	− 8·5	− 0·8	−10·1	− 2·4	−11·4	− 1·7	− 7·8	26
27	3·1	−22·2	2·6	−23·3	3·7	−22·7	1·1	−24·0	2·4	−20·7	3·3	−16·6	1·8	−19·0	1·5	−14·8	5·4	−11·7	4·4	−11·6	1·3	−12·8	3·6	−11·7	27
28	− 3·6	− 5·7	− 2·4	− 4·7	− 3·8	− 5·8	− 3·2	− 6·4	− 1·8	− 7·9	− 6·7	− 3·7	− 6·9	− 4·1	− 7·3	− 3·8	− 8·2	− 2·8	− 9·1	− 6·6	− 8·8	− 6·6	−10·7	− 6·6	28
29	− 3·0	− 9·9	− 6·2	− 9·8	− 7·1	− 6·5	− 4·0	− 4·8	− 2·7	− 3·7	0·8	− 3·0	− 0·3	− 3·4	− 2·4	− 2·6	− 1·9	− 3·2	− 1·4	− 5·1	− 0·4	− 6·3	− 1·6	− 4·8	29
30	− 3·4	− 1·2	− 5·6	3·3	− 5·9	1·5	− 3·6	− 0·8	− 4·3	− 1·2	− 6·9	− 1·2	− 5·2	− 1·2	− 6·4	− 5·9	− 4·9	− 5·8	− 2·8	− 4·8	− 2·8	− 4·0	− 2·9	− 3·8	30
31	− 3·6	− 1·4	− 4·6	− 2·5	− 4·3	− 1·8	− 4·7	− 1·6	− 4·5	− 1·9	− 4·2	− 1·5	− 0·5	− 0·6	− 1·4	− 0·5	− 1·8	0·1	− 0·5	0·3	− 8·9	1·5	−10·1	− 0·5	31
Means	− 3·91	− 7·41	− 4·35	− 7·34	− 4·31	− 7·78	− 3·81	− 8·16	− 3·65	− 7·89	− 3·85	− 8·11	− 3·77	− 8·21	− 3·73	− 8·29	− 3·82	− 7·39	− 3·97	− 7·51	− 4·58	− 7·50	− 4·94	− 7·07	Means.

* 13–22 h., four years.

TABLE II.

SHOWING the MEAN COMPONENTS of the WIND at each HOUR of the DAY in each MONTH (average of Six), from January 1863 to December 1868.

Hours.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.
0	−2·86	−6·24	−4·01	− 9·05	−2·29	−0·84	−3·54	−1·15	−1·26	1·62	−3·78	−4·07	0·67	−3·74	−2·29	−2·00	−4·34	−3·47	−2·19	−2·40	−2·04	−5·98	−4·82	−7·06
1	−3·10	−6·20	−3·85	− 9·14	−2·52	−0·67	−3·15	−1·04	−1·44	1·11	−3·48	−3·97	0·74	−3·76	−1·91	−2·14	−4·05	−3·76	−2·12	−1·94	−2·06	−6·27	−4·01	−6·51
2	−3·72	−6·17	−3·28	−10·09	−1·89	−1·38	−3·40	−1·50	−1·30	1·12	−2·92	−4·00	0·57	−4·18	−1·74	−1·95	−3·84	−3·54	−1·86	−1·92	−0·96	−6·41	−3·67	−7·04
Mean	−3·23	−6·20	−3·71	− 9·43	−2·23	−0·96	−3·36	−1·23	−1·33	1·28	−3·39	−4·01	0·66	−3·89	−1·98	−2·03	−4·08	−3·59	−2·06	−2·09	−1·69	−6·22	−4·17	−6·87
3	−3·60	−5·40	−2·98	−10·09	−1·94	−0·89	−3·08	−0·69	−1·51	1·19	−2·87	−3·92	1·11	−3·79	−1·86	−1·98	−3·73	−3·62	−2·13	−1·82	−1·25	−6·34	−3·76	−6·81
4	−3·76	−5·42	−2·73	− 9·04	−1·73	−1·14	−2·76	−0·57	−1·19	1·34	−2·59	−3·65	1·01	−3·39	−1·60	−1·71	−3·57	−3·72	−1·77	−2·23	−1·63	−6·23	−2·99	−6·36
5	−3·99	−4·87	−2·28	− 9·51	−1·07	−0·49	−3·01	−0·50	−1·37	1·52	−2·44	−3·14	1·33	−3·54	−1·41	−1·65	−2·91	−3·55	−2·01	−1·43	−1·20	−6·08	−2·45	−6·80
Mean	−3·78	−5·23	−2·66	− 9·55	−1·58	−0·84	−2·95	−0·59	−1·36	1·35	−2·63	−3·57	1·15	−3·57	−1·62	−1·78	−3·40	−3·63	−1·97	−1·83	−1·36	−6·22	−3·07	−6·66
6	−4·29	−5·39	−2·22	− 8·66	−0·97	−0·50	−2·87	−0·32	−1·15	1·63	−2·29	−2·81	1·50	−3·28	−1·30	−1·14	−2·96	−3·32	−1·77	−1·17	−1·26	−5·60	−2·72	−6·79
7	−4·50	−5·15	−1·91	− 8·24	−1·19	−1·05	−3·61	0·14	−1·54	1·64	−2·21	−2·34	1·36	−3·39	−1·54	−0·96	−2·86	−3·18	−2·04	−0·80	−0·99	−5·16	−2·67	−7·54
8	−4·73	−4·12	−2·14	− 8·74	−1·70	−0·98	−3·90	0·40	−1·77	1·05	−2·14	−1·58	1·06	−2·76	−1·73	−0·98	−2·76	−3·26	−2·32	−0·77	−1·19	−4·94	−3·00	−7·37
Mean	−4·51	−4·89	−2·09	− 8·55	−1·29	−0·84	−3·46	0·07	−1·49	1·44	−2·21	−2·24	1·31	−3·14	−1·52	−1·03	−2·86	−3·25	−2·04	−0·91	−1·15	−5·23	−2·80	−7·23
9	−5·32	−4·66	−2·64	− 8·21	−2·39	−1·09	−4·25	0·47	−1·97	1·26	−2·49	−1·55	0·88	−2·79	−1·85	−1·02	−2·94	−3·15	−2·18	−0·61	−0·79	−4·87	−2·82	−7·61
10	−4·74	−4·70	−2·59	− 8·06	−2·20	−0·74	−4·66	−0·13	−1·94	1·20	−2·70	−1·52	0·83	−2·85	−1·87	−0·98	−2·96	−3·29	−2·25	−0·95	−1·11	−4·68	−3·18	−7·43
11	−4·91	−5·28	−3·26	− 7·94	−2·11	−0·72	−4·20	−0·43	−2·18	1·44	−2·79	−1·58	0·58	−2·43	−2·16	−0·55	−2·84	−3·20	−2·57	−1·40	−0·84	−4·32	−4·15	−7·68
Mean	−4·99	−4·88	−2·83	− 8·07	−2·23	−0·85	−4·37	−0·03	−2·03	1·30	−2·66	−1·55	0·76	−2·69	−1·96	−0·85	−2·91	−3·21	−2·33	−0·99	−0·91	−4·62	−3·38	−7·57
12	−4·67	−5·18	−2·89	− 8·46	−2·44	−1·25	−4·70	0	−2·43	2·03	−2·85	−1·58	0·33	−2·57	−2·06	−0·80	−2·43	−3·37	−2·80	−1·91	−0·91	−4·34	−3·91	−7·41
13	−4·32	−4·52	−3·51	− 8·00	−1·99	−1·65	−4·32	−0·61	−2·59	2·04	−3·01	−1·78	0·19	−2·19	−1·79	−0·91	−2·42	−3·35	−2·77	−1·54	−1·12	−4·35	−4·35	−7·34
14	−3·93	−4·47	−2·76	− 8·39	−2·47	−2·12	−4·30	−1·16	−2·55	1·75	−3·26	−2·28	0·22	−2·18	−1·86	−1·34	−2·27	−3·52	−2·39	−1·75	−0·67	−4·36	−4·31	−7·78
Mean	−4·31	−4·72	−3·05	− 8·28	−2·30	−1·67	−4·44	−0·59	−2·52	1·94	−3·04	−1·88	0·25	−2·31	−1·90	−1·02	−2·37	−3·41	−2·65	−1·73	−0·90	−4·35	−4·19	−7·51
15	−4·45	−4·12	−2·90	− 8·14	−2·59	−1·44	−3·76	−1·27	−2·69	2·10	−3·08	−2·07	−0·04	−2·17	−1·81	−1·85	−2·15	−2·71	−2·12	−1·88	−0·43	−4·73	−3·81	−8·16
16	−4·42	−4·15	−3·28	− 7·23	−2·10	−1·57	−3·05	−1·51	−2·44	2·55	−3·16	−2·50	−0·10	−2·30	−1·37	−2·03	−1·99	−2·35	−2·17	−1·91	−0·41	−4·96	−3·65	−7·89
17	−4·11	−5·25	−3·60	− 7·01	−1·58	−1·96	−3·30	−1·56	−2·14	2·60	−2·95	−2·37	0·07	−2·49	−1·36	−1·90	−1·98	−2·50	−1·73	−2·29	−0·84	−4·90	−3·85	−8·11
Mean	−4·33	−4·51	−3·26	− 7·46	−2·09	−1·66	−3·37	−1·45	−2·42	2·42	−3·06	−2·31	−0·02	−2·32	−1·51	−1·93	−2·04	−2·52	−2·01	−2·03	−0·56	−4·86	−3·77	−8·05
18	−3·86	−5·61	−3·85	− 6·23	−1·29	−2·06	−3·08	−1·91	−2·21	2·94	−2·98	−2·49	0·58	−2·16	−1·60	−1·82	−2·01	−2·46	−1·59	−2·03	−0·72	−4·99	−3·77	−8·21
19	−4·16	−5·51	−3·28	− 6·73	−1·52	−2·02	−3·41	−0·98	−2·53	2·82	−2·88	−2·99	0·74	−2·16	−1·54	−2·12	−2·52	−2·58	−1·65	−2·22	−0·99	−5·39	−3·73	−8·29
20	−4·02	−5·54	−3·05	− 6·59	−1·66	−1·49	−3·90	−0·35	−2·32	2·94	−3·20	−3·21	0·80	−2·55	−1·51	−1·94	−3·34	−2·70	−1·74	−1·64	−1·05	−5·28	−3·82	−7·39
Mean	−4·01	−5·55	−3·39	− 6·52	−1·49	−1·86	−3·46	−1·08	−2·32	2·90	−3·02	−2·90	0·71	−2·29	−1·55	−1·96	−2·62	−2·58	−1·66	−1·96	−0·92	−5·22	−3·77	−7·96
21	−3·96	−5·10	−3·46	− 6·68	−2·55	−1·33	−3·90	−0·26	−2·37	2·69	−2·77	−3·69	0·79	−2·63	−1·61	−1·84	−3·52	−2·71	−1·65	−1·93	−1·07	−4·80	−3·97	−7·51
22	−3·25	−5·19	−3·59	− 7·04	−2·48	−1·03	−3·99	−0·72	−2·22	2·64	−3·01	−3·75	0·51	−2·72	−1·72	−2·11	−4·03	−2·88	−1·96	−2·08	−1·53	−4·88	−4·58	−7·50
23	−2·70	−5·53	−4·16	− 8·28	−3·25	−1·77	−3·87	−0·86	−1·27	2·14	−3·16	−4·01	0·16	−3·57	−2·07	−2·32	−4·08	−2·87	−1·94	−2·63	−1·62	−5·06	−4·94	−7·07
Mean	−3·30	−5·27	−3·74	− 7·33	−2·76	−1·38	−3·92	−0·61	−1·95	2·49	−2·98	−3·82	0·49	−2·97	−1·80	−2·09	−3·88	−2·82	−1·85	−2·21	−1·41	−4·91	−4·50	−7·36
Daily Mean	−4·06	−5·16	−3·09	− 8·15	−2·00	−1·26	−3·67	−0·69	−1·93	1·89	−2·88	−2·79	0·66	−2·90	−1·73	−1·59	−3·02	−3·13	−2·07	−1·72	−1·11	−5·20	−3·71	−7·40

TABLE III.—Showing the MEAN THREE-HOURLY COMPONENTS grouped for DAY and NIGHT HOURS, with the RESULTANTS and ATMOSPHERIC TRANSLATION for each Month; also TABLES of the SUN'S ALTITUDE and AZIMUTH.

JANUARY.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 4·51	− 4·89	7	− 26	272	W. 2° N.
9–11	− 4·99	− 4·88	10	− 46	317	N.W. 2° N.
12–14	− 4·31	− 4·72	13	− 51	22	N.N.E.
15–17	− 4·33	− 4·51	16	− 33	75	E. by N. 3° N.
Night	− 4·54	− 4·75				
18–20	− 4·01	− 5·55	19	− 11	113	E.S.E.
21–23	− 3·30	− 5·27	22	6 30	152	S.S.E. 5° N.
0–2	− 3·23	− 6·20	1	9	194	S. by W. 3° N.
3–5	− 3·78	− 5·23	4	− 4	234	S.W. by W. 2° S.
Day	− 3·58	− 5·56				

For Night Hours V = 6·6 D = S. 46° W. Translation during 6 years = 14,731 miles.
„ Day Hours „ = 6·6 „ = S. 57° W. „ „ = 14,731 „
„ the whole 24 Hours „ = 6·6 „ = S. 52° W. „ for Month during 6 years = 29,462 „

FEBRUARY.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 2·09	− 8·55	7	− 19	275 30	W. 5° 30′ N.
9–11	− 2·83	− 8·07	10	− 39	321	N.W. by N. 5° S.
12–14	− 3·05	− 8·28	13	− 44	21	N.N.E. 1° N.
15–17	− 3·26	− 7·46	16	− 26	71	E.N.E. 4° S.
Night	− 2·81	− 8·09				
18–20	− 3·39	− 6·52	19	− 3	110	E.S.E. 2° N.
21–23	− 3·74	− 7·33	22	14 30	150	S.E. by S. 4° S.
0–2	− 3·71	− 9·43	1	17	195	S. by W. 4° N.
3–5	− 2·66	− 9·55	4	3 30	238	S.W. by W. 2° N.
Day	− 3·38	− 8·21				

For Night Hours V = 8·6 D = S. 71° W. Translation during 6 years = 17,338 miles.
„ Day Hours „ = 8·9 „ = S. 68° W. „ „ = 17,942 „
„ the whole 24 Hours „ = 8·7 „ = S. 69° W. „ for Month during 6 years = 35,078 „

MARCH.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 1·29	− 0·84	7	− 10	282 30	W. by N. 1° N.
9–11	− 2·23	− 0·85	10	− 29	326	N.W. by N.
12–14	− 2·30	− 1·67	13	− 34	18	N.N.E. 5° N.
15–17	− 2·09	− 1·66	16	− 16	64	E.N.E. 3° N.
Night	− 1·98	− 1·26				
18–20	− 1·49	− 1·86	19	6	104	E. by S. 3° S.
21–23	− 2·76	− 1·38	22	25	147	S.E. by S. 1° S.
0–2	− 2·23	− 0·96	1	28	197	S.S.W. 5° S.
3–5	− 1·58	− 0·84	4	12 30	243	W.S.W. 4° S.
Day	− 2·02	− 1·26				

For Night Hours V = 2·3 D = S. 33° W. Translation during 6 years = 5,134 miles.
„ Day Hours „ = 2·4 „ = S. 32° W. „ „ = 5,357 „
„ the whole 24 Hours „ = 2·4 „ = S. 32° W. „ for Month during 6 years = 10,714 „

APRIL.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 3·46	0·07	7	0	288	W.N.W. 4° S.
9–11	− 4·37	− 0·03	10	− 18	330	N.W. by N. 4° N.
12–14	− 4·44	− 0·59	13	− 22	15	N. by E. 4° S.
15–17	− 3·37	− 1·45	16	− 5 30	59	N.E. by E. 3° S.
Night	− 3·91	− 0·50				
18–20	− 3·46	− 1·08	19	17 30	97	E. by S. 4° N.
21–23	− 3·92	− 0·61	22	36 30	142 30	S.E. by S. 4° N.
0–2	− 3·36	− 1·23	1	39 45	199	S.S.W. 4° S.
3–5	− 2·95	− 0·59	4	23	249	W.S.W. 2° N.
Day	− 3·42	− 0·88				

For Night Hours V = 3·9 D = S. 7° W. Translation during 6 years = 8,424 miles.
„ Day Hours „ = 3·5 „ = S. 14° W. „ „ = 7,560 „
„ the whole 24 Hours „ = 3·7 „ = S. 11° W. „ for Month during 6 years = 15,984 „

MAY.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 1·49	1·44	7	7 45	293	W.N.W.
9–11	− 2·03	1·30	10	− 9	332	N.N.W. 5° S.
12–14	− 2·52	1·94	13	− 11 30	14	N. by E. 3° S.
15–7	− 2·42	2·42	16	2 30	55	N.E. by E. 1° N.
Night -	− 2·12	1·78				
18–20	− 2·32	2·90	19	24 45	93	E. 3° S.
21–23	− 1·95	2·49	22	45	139	S.E. 4° S.
0–2	− 1·33	1·28	1	48 30	202	S.S.W.
3–5	− 1·36	1·35	4	31	254	W. by S. 5° S.
Day -	− 1·74	2·01				

For Night Hours V = 2·8 D = S. 40° E. Translation during 6 years = 6,250 miles.
„ Day Hours „ = 2·7 „ = S. 49° E. „ „ = 6,026 „
„ the whole 24 Hours „ = 2·7 „ = S. 45° E. „ for Month during 6 years = 12,053 „

JUNE.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 2·21	− 2·24	7	11	296	W.N.W. 3° N.
9–11	− 2·66	− 1·55	10	− 4	335	N.N.W. 2° S.
12–14	− 3·04	− 1·88	13	− 7 30	14	N. by E. 3° S.
15–17	− 3·06	− 2·31	16	6 30	53	N.E. by E. 3° N.
Night -	− 2·74	− 2·00				
18–20	− 3·02	− 2·90	19	28 30	90	E.
21–23	− 2·98	− 3·82	22	49 30	136	S.E. 1° S.
0–2	− 3·39	− 4·01	1	52 30	203	S.S.W.
3–5	− 2·63	− 3·57	4	34 30	257	W. by S. 2° S.
Day -	− 3·01	− 3·58				

For Night Hours V = 3·4 D = S. 36° W. Translation during 6 years = 7,344 miles.
„ Day Hours „ = 4·7 „ = S. 50° W. „ „ = 10,152 „
„ the whole 24 Hours „ = 4·0 „ = S. 44° W. „ for Month during 6 years = 17,280 „

JULY.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	1·31	− 3·14	7	10 15	294	W.N.W. 1° N.
9–11	0·76	− 2·69	10	− 6 30	332	N.N.W. 5° S.
12–14	0·25	− 2·31	13	− 9	13	N. by E. 2° S.
15–17	− 0·02	− 2·32	16	4 30	54	N.E. by E. 2° N.
Night -	0·58	− 2·62				
18–20	0·71	− 2·29	19	26	91	E. 1° S.
21–23	0·49	− 2·97	22	47	137	S.E. 2° S.
0–2	0·66	− 3·89	1	51	203	S.S.W.
3–5	1·15	− 3·57	4	33	256	W. by S. 3° S.
Day -	0·75	− 3·18				

For Night Hours V = 2·7 D = N. 78° W. Translation during 6 years = 6,026 miles.
„ Day Hours „ = 3·3 „ = N. 77° W. „ „ = 6,706 „
„ the whole 24 Hours „ = 3·0 „ = N. 77° W. „ for Month during 6 years = 13,392 „

AUGUST.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 1·52	− 1·03	7	4	290	W.N.W. 2° S.
9–11	− 1·96	− 0·85	10	− 14	330	N.W. by N. 4° N.
12–14	− 1·90	− 1·02	13	− 16	15	N. by E. 4° S.
15–17	− 1·51	− 1·93	16	− 2 30	57	N.E. by E. 1° S.
Night -	− 1·72	− 1·21				
18–20	− 1·55	− 1·96	19	20	95	E. 5° S.
21–23	− 1·80	− 2·09	22	40 15	141	S.E. by S. 5° N.
0–2	− 1·98	− 2·03	1	44	200	S.S.W. 3° S.
3–5	− 1·62	− 1·78	4	26 30	251	W.S.W. 3° N.
Day -	− 1·74	− 1·97				

For Night Hours V = 2·1 D = S. 35° W. Translation during 6 years = 4,687 miles.
„ Day Hours „ = 2·6 „ = S. 48° W. „ „ = 5,803 „
„ the whole 24 Hours „ = 2·4 „ = S. 42° W. „ for Month during 6 years = 10,714 „

SEPTEMBER.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 2·86	− 3·25	7	− 6	285	W. by N. 4° N.
9–11	− 2·91	− 3·21	10	− 24 30	330	N.W. by N. 4° N.
12–14	− 2·37	− 3·41	13	− 27	17	N.N.E. 5° N.
15–17	− 2·04	− 2·52	16	− 10 30	63	E.N.E. 4° N.
Night -	− 2·55	− 3·10				
18–20	− 2·62	− 2·58	19	11 30	102	E. by S. 1° S.
21–23	− 3·88	− 2·82	22	30	145	S.E. by S. 1° N.
0–2	− 4·08	− 3·59	1	33	198	S.S.W. 4 S.
3–5	− 3·40	− 3·63	4	17	245	W.S.W. 2° S.
Day -	− 3·50	− 3·16				

For Night Hours V = 4·0 D = S. 51° W. Translation during 6 years = 8,640 miles.
„ Day Hours „ = 4·7 „ = S. 42° W. „ „ = 10,152 „
„ the whole 24 hours „ = 4·4 „ = S. 46° W. „ for Month during 6 years = 19,008 „

OCTOBER.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 2·04	− 0·91	7	− 15	279	W. by N. 2° S.
9–11	− 2·33	− 0·99	10	− 35	326	N.W. by N.
12–14	− 2·65	− 1·73	13	− 38	17	N.N.E. 5° N.
15–17	− 2·01	− 2·03	16	− 24 30	67	E.N.E.
Night -	− 2·26	− 1·42				
18–20	− 1·66	− 1·96	19	1	107	E.S.E. 5° N.
21–23	− 1·85	− 2·21	22	18 30	148	S.E. by S. 2° S.
0–2	− 2·06	− 2·09	1	21 22	196	S. by W. 5° N.
3–5	− 1·97	− 1·83	4	7 30	240	S.W. by W. 4° S.
Day -	− 1·89	− 2·02				

For Night Hours V = 2·7 D = S. 32° W. Translation during 6 years = 6,026 miles.
„ Day Hours „ = 2·8 „ = S. 47° W. „ „ = 6,250 „
„ the whole 24 Hours „ = 2·7 „ = S. 40° W. „ for Month during 6 years = 12,053 „

NOVEMBER.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 1·15	− 5·23	7	− 24	275	W. 5° N.
9–11	− 0·91	− 4·62	10	− 44	321	N.W. by N. 5° S.
12–14	− 0·90	− 4·35	13	− 47 30	23	N.N.E.
15–17	− 0·56	− 4·86	16	− 31	72	E.N.E. 4° S.
Night	− 0·88	− 4·77				
18–20	− 0·92	− 5·22	19	− 8	112	E.S.E.
21–23	− 1·41	− 4·91	22	9	151	S.E. by S. 5° S.
0–2	− 1·69	− 6·22	1	11 30	196	S. by W. 5° N.
3–5	− 1·36	− 6·22	4	− 3	237	S.W. by W. 1° N.
Day	− 1·35	− 5·64				

For Night Hours V = 4·8 D = S. 79° W. Translation during 6 years = 10,368 miles.
„ Day Hours „ = 5·8 „ = S. 77° W. „ „ = 12,528 „
„ the whole 24 Hours „ = 5·3 „ = S. 78° W. „ for Month during 6 years = 22,896 „

DECEMBER.

Hour.	N.	E.	Hour.	Altitude.	Azimuth.	From N.
				° ′	° ′	
6–8	− 2·80	− 7·23	7	− 28	272	W. 2° N.
9–11	− 3·38	− 7·57	10	− 49	319	N.W. 4° N.
12–14	− 4·19	− 7·51	13	− 54	24	N.N.E. 1° S.
15–17	− 3·77	− 8·05	16	− 35	76	E. by N. 3° N.
Night	− 3·54	− 7·59				
18–20	− 3·77	− 7·96	19	− 12 30	113	E.S.E.
21–23	− 4·50	− 7·36	22	4	152	S.S.E. 5° S.
0–2	− 4·17	− 6·87	1	7	194	S. by W. 3° N.
3–5	− 3·07	− 6·66	4	− 6	234	S.W. by W. 2° S.
Day	− 3·88	− 7·21				

For Night Hours V = 8·4 D = S. 65° W. Translation during 6 years = 18,749 miles.
„ Day Hours „ = 8·2 „ = S. 62° W. „ „ = 18,302 „
„ the whole 24 Hours „ = 8·3 „ = S. 63° W. „ for Month during 6 years = 37,051 „

TABLE IV.

SHOWING the VARIATION of the 3-HOURLY MEAN COMPONENTS during the course of the Year, and the AVERAGE VELOCITY of the WIND in each Month.

Months.	Noon to 2 p.m.		3 to 5 p.m.		6 to 8 p.m.		9 to 11 p.m.		Midnight to 2 a.m.		3 to 5 a.m.		6 to 8 a.m.		9 to 11 a.m.		Average Velocity of the Wind.
	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	N.	E.	m.
January -	−3·23	−6·20	−3·78	−5·23	−4·51	−4·89	−4·99	−4·88	−4·31	−4·72	−4·33	−4·51	−4·01	−5·55	−3·30	−5·27	19·1
February -	−3·71	−9·43	−2·66	−9·55	−2·09	−8·55	−2·83	−8·07	−3·05	−8·28	−3·26	−7·46	−3·39	−6·52	−3·74	−7·33	20·7
March -	−2·23	−0·96	−1·58	−0·84	−1·29	−0·84	−2·23	−0·85	−2·30	−1·67	−2·09	−1·66	−1·49	−1·86	−2·76	−1·38	17·4
April -	−3·36	−1·23	−2·95	−0·59	−3·46	0·07	−4·37	−0·03	−4·44	−0·59	−3·37	−1·45	−3·46	−1·08	−3·92	−0·61	16·3
May -	−1·33	1·28	−1·36	1·35	−1·49	1·44	−2·03	1·30	−2·52	1·94	−2·42	2·42	−2·32	2·90	−1·95	2·49	14·2
June -	−3·39	−4·01	−2·63	−3·57	−2·21	−2·24	−2·66	−1·55	−3·04	−1·88	−3·06	−2·31	−3·02	−2·90	−2·98	−3·82	13·7
July -	0·66	−3·89	1·15	−3·57	1·31	−3·14	0·76	−2·69	0·25	−2·31	−0·02	−2·32	0·71	−2·29	0·49	−2·97	12·0
August -	−1·98	−2·03	−1·62	−1·78	−1·52	−1·03	−1·96	−0·85	−1·90	−1·02	−1·51	−1·93	−1·55	−1·96	−1·80	−2·09	12·1
September	−4·08	−3·59	−3·40	−3·63	−2·86	−3·25	−2·91	−3·21	−2·37	−3·41	−2·04	−2·52	−2·62	−2·58	−3·88	−2·82	13·2
October -	−2·06	−2·09	−1·97	−1·83	−2·04	−0·91	−2·33	−0·99	−2·65	−1·73	−2·01	−2·03	−1·66	−1·96	−1·85	−2·21	16·4
November	−1·69	−6·22	−1·36	−6·22	−1·15	−5·23	−0·91	−4·62	−0·90	−4·35	−0·56	−4·86	−0·92	−5·22	−1·41	−4·91	17·3
December-	−4·17	−6·87	−3·07	−6·66	−2·80	−7·23	−3·38	−7·57	−4·19	−7·51	−3·77	−8·05	−3·77	−7·96	−4·50	−7·36	20·3
Mean -	−2·55	−3·77	−2·10	−3·51	−2·01	−2·98	−2·49	−2·83	−2·62	−2·96	−2·37	−3·06	−2·29	−3·08	−2·63	−3·19	16·1

SUMMARY.

Hours.	Resultant.	
	Velocity.	Direction.
Noon to 2 p.m. -	4·5	S. 56 W.
3 h. „ 5 „ -	4·1	59
6 h. „ 8 „ -	3·6	56
9 h. „ 11 „ -	3·8	48
Midt. „ 2 a.m. -	4·0	48
3 h. „ 5 „ -	3·9	52
6 h. „ 8 „ -	3·8	53
9 h. „ 11 „ -	4·1	S. 50 W.
Mean - -	4·0	S. 53 W.

TABLE V.—Showing the MEAN COMPONENTS, with resulting VELOCITY and DIRECTION for DAY and NIGHT HOURS, and for the SIX SUMMER and SIX WINTER MONTHS separately.

Months.	Day Hours (18–5h).				Night Hours (6–17h).			
	N.	E.	V.	D.	N.	E.	V.	D.
April	−3·42	−0·88	3·5	S. 14° W.	−3·91	−0·50	4·0	S. 7° W.
May	−1·74	2·01	2·7	S. 49 E.	−2·12	1·78	2·8	S. 40 E.
June	−3·01	−3·58	4·7	S. 50 W.	−2·74	−2·00	3·4	S. 36 W.
July	0·75	−3·18	3·3	N. 77 W.	0·58	−2·62	2·7	N. 77 W.
August	−1·74	−1·97	2·6	S. 49 W.	−1·72	−1·21	2·1	S. 35 W.
September	−3·50	−3·16	4·7	S. 42 W.	−2·55	−3·10	4·0	S. 50 W.
Summer Mean	−2·11	−1·79	2·8	S. 40 W.	−2·08	−1·28	2·4	S. 32 W.
October	−1·89	−2·02	2·8	S. 47° W.	−2·26	−1·42	2·7	S. 32° W.
November	−1·35	−5·64	5·8	S. 76 W.	−0·88	−4·77	4·9	S. 79 W.
December	−3·88	−7·21	8·2	S. 62 W.	−3·54	−7·59	8·4	S. 65 W.
January	−3·58	−5·56	6·6	S. 57 W.	−4·54	−4·75	6·6	S. 46 W.
February	−3·38	−8·21	8·9	S. 68 W.	−2·81	−8·09	8·6	S. 71 W.
March	−2·02	−1·26	2·4	S. 32 W.	−1·98	−1·26	2·3	S. 32 W.
Winter Mean	−2·68	−4·98	5·7	S. 62 W.	−2·67	−4·65	5·4	S. 60 W.
Yearly Mean	−2·40	−3·39	4·1	S. 55 W.	−2·38	−2·97	3·8	S. 51 W.

Average for the year, and for all hours, S. 2·39, W. 3·18.
V., 4·0, D., S. 53° W.
Average yearly translation of atmosphere (average of 6 years), 35,040 miles.

GENERAL SUMMARY (*see* p. [10]).

JANUARY.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°						°			°
1863	30	20·4	30	27	9·0	80	60	10·6	62	82	17·3	15
1864	—	—	—	33	17·9	77	27	14·0	60	386	19·2	12
1865	150	8·8	28	33	5·7	73	80	25·7	55	57	21·4	16
1866	36	11·9	32	3	16·0	79	8	31·5	55	176	18·8	10
1867	201	14·4	25	105	14·3	77	130	16·0	60	74	16·2	27
1868	8	18·4	24	36	9·0	77	129	7·7	53	184	14·2	20
Mean -	425	12·3	28	237	12·0	77	434	17·6	58	959	17·9	17

Years.	From S. to S. W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	148	14·3	28	191	26·4	73	147	30·2	68	25	23·5	17
1864	160	16·2	24	104	26·2	81	8	7·9	69	2	13·5	34
1865	107	16·6	29	148	31·0	72	41	33·7	71	82	21·5	19
1866	116	14·4	28	250	26·1	70	79	20·1	66	74	22·3	26
1867	42	17·5	27	51	28·3	71	4	27·3	79	124	26·4	9
1868	72	17·7	25	159	25·3	75	51	21·7	61	46	27·2	17
Mean -	645	16·1	27	903	27·2	74	330	23·5	69	353	22·4	20

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	92	32	19 26	1 12	W.N.W. W.	62	2	29·354	40·1
1864	139	0	16	20	S.E. by S.	44	24	29·924	38·0
1865	167	33	5	19 20	W.N.W.	70	13	29·327	36·0
1866	170	2	14	23 24	W. by S.	52	0	29·374	39·8
1867	142	13	12	0	N.N.W.	50	0	29·618	31·1
1868	101	22	25 28	9 21	N.W. S.E.	52	*37	29·637	38·0
Total -	811	102	—	—	—	—	Mean -	29·539	37·2

* The strongest winds occurred during these hours, V. 70 m. Direction Southerly, having been recorded between 0–3 h. on the 24th.

Remarks.

During this month the winds prevailed between W. and S.E., 22 % being in the octant S.E. to S., and 21 % from S.W. to W. They were least frequent in the octant N.E. to N., being only 5 %.

FEBRUARY.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	9	9·2	25	4	6·8	84	48	8·8	47	93	18·5	17
1864	31	7·7	21	39	19·8	87	169	8·4	61	176	15·0	14
1865	64	15·5	26	36	14·1	80	120	20·0	68	150	17·1	27
1866	131	20·2	29	70	18·1	74	15	13·0	64	42	22·1	14
1867	11	19·4	45	48	8·3	82	59	14·8	55	127	15·3	25
1868	—	—	—	—	—	—	17	25·4	48	83	21·0	15
Mean	246	12·0	29	197	11·2	81	428	15·1	57	671	18·2	19

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°						°
1863	80	17·6	28	212	27·1	79	106	29·9	70	13	20·8	25
1864	50	15·9	24	81	26·2	74	38	25·0	70	81	25·3	12
1865	41	13·8	32	114	19·7	71	53	20·3	64	81	20·7	18
1866	77	9·3	35	148	25·2	72	75	23·8	62	78	23·2	21
1867	120	18·4	34	196	28·8	73	65	31·6	69	26	19·5	28
1868	84	19·1	30	321	28·5	73	161	27·6	69	22	33·2	29
Mean	452	15·7	31	1072	25·9	74	498	26·4	67	301	23·8	22

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	157	1	4	14	W.N.W.	59	106	29·846	40·7
1864	108	22	12	5	W.N.W.	57	9	29·835	34·0
1865	80	1	19	11	N.N.W.	50	12	29·772	36·0
1866	127	11	7	5	W. by S.	56	25	29·414	36·0
1867	156	6	24	6	W.S.W.	61	14	29·655	39·8
1868	272	8	5	13	W.S.W.	74	—	29·580	40·4
Total -	900	49	—	—	—	—	Mean	29·684	37·8

Remarks.

The prevalent winds were in the octant S.W. to W., being 27 °/₀, the least frequent, 5 °/₀, being in the octant N.E. to E.

MARCH.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	44	12·8	24	45	11·0	75	163	22·2	60	154	18·5	24
1864	84	14·6	21	59	9·4	74	113	11·0	66	73	17·9	23
1865	90	12·9	23	25	5·5	71	99	22·9	54	151	17·0	16
1866	93	15·8	27	46	15·1	82	192	21·1	59	105	21·2	25
1867	135	14·5	24	127	11·4	73	85	20·1	68	77	7·4	21
1868	14	7·8	12	3	15·7	82	40	20·6	48	158	22·6	18
Mean -	460	13·1	22	305	11·4	76	692	19·7	59	718	17·4	21

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	119	17·2	26	69	19·3	72	68	28·0	65	68	19·3	20
1864	44	11·7	30	151	18·8	75	78	21·4	62	97	18·2	18
1865	61	14·3	30	108	20·3	73	64	27·4	65	103	24·1	18
1866	27	15·1	35	141	18·9	75	55	12·3	61	82	16·0	17
1867	48	7·2	25	96	11·4	73	23	16·3	57	57	15·9	19
1868	121	14·6	30	189	23·3	72	128	22·8	62	64	20·0	16
Mean -	420	13·4	29	754	18·7	73	416	21·4	62	471	18·9	18

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	139	3	25	22	W.N.W.	54	11	29·710	40·5
1864	73	45	11	9	N.W. by N.	61	0	29·586	36·0
1865	122	5	6	4 6	N.W. by W. N.W. by N.	53	38	29·819	37·2
1866	96	3	6	5	S.E. by E.	42	0	29·664	37·4
1867	30	43	23	6	E. by S.	45	53	29·900	35·9
1868	152	2	4	8	W. by S.	59	25	29·604	41·2
Total -	612	101	—	—	—	—	Mean -	29·714	38·0

Remarks.

During this month the winds were more variable, 17 % being in each of the octants S.W. to W., and S.E. to S., and 16 % in the octant E. to S.E. The least, 7 %, were in the octant N.E. to E.

APRIL.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	3	32·3	23	22	17·5	83	107	21·9	65	134	18·0	18
1864	59	11·4	29	50	8·2	66	58	15·9	57	234	17·5	20
1865	42	9·8	17	39	12·3	81	74	15·4	68	110	13·6	24
1866	100	14·3	32	74	11·7	72	201	17·5	59	100	15·0	24
1867	104	11·9	24	49	16·9	74	156	21·6	63	110	17·2	21
1868	62	10·2	23	32	18·4	83	170	18·1	59	22	9·8	17
Mean	370	15·0	25	266	14·2	77	766	18·4	62	710	15·2	21

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			
1863	189	18·4	33	125	20·8	70	50	21·3	64	31	27·5	15
1864	35	12·6	23	121	18·2	71	63	14·9	66	90	11·2	14
1865	104	12·5	29	198	19·3	72	83	13·0	62	47	13·2	10
1866	54	10·0	27	44	11·7	64	38	19·2	62	102	15·2	17
1867	26	13·3	23	131	20·4	73	68	26·8	70	48	15·8	16
1868	122	16·1	36	163	17·4	68	45	14·2	63	81	11·9	20
Mean	530	13·8	29	782	18·0	70	347	18·2	65	399	15·8	15

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	119	0	23	8	W. by N.	48	59	29·720	43·0
1864	23	10	11	3	W. by S.	36	0	29·986	43·6
1865	28	23	6	21	S.W. by S.	38	0	30·063	43·5
1866	35	7	28	0	N.	42	0	29·940	41·8
1867	95	4	15	4	W. by N.	40	24	29·520	41·9
			19	19	N.W.				
				21	N.W.				
				22	W.N.W.				
1868	64	23	29	3	W.	47	0	29·795	44·0
Total -	364	67	—	—	—	—	Mean	29·837	43·0

Remarks.

During this month we find 18 °/₀ in each of the octants S.W. to W. and E. to S.E., and 17 °/₀ in the octant S.E. to S.; the least, 6 °/₀, being in the octant N.E. to E.

MAY.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	51	13·0	19	36	11·2	68	55	12·3	60	64	10·3	20
1864	35	10·6	19	75	9·1	81	212	16·3	61	86	19·0	26
1865	115	16·4	24	48	14·7	79	126	14·9	60	100	14·7	21
1866	105	12·0	26	55	13·3	70	128	12·0	52	137	15·2	26
1867	62	10·3	20	192	18·9	75	221	18·4	65	35	12·9	30
1868	9	7·9	32	59	12·9	80	245	17·5	59	142	12·1	20
Mean	377	11·7	23	465	13·4	76	987	15·2	60	564	14·0	24

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	55	9·8	33	180	18·6	70	87	12·3	64	74	11·6	16
1864	9	8·8	43	59	14·1	81	101	14·4	66	127	16·2	12
1865	70	12·7	30	133	12·3	69	57	7·0	59	73	11·2	17
1866	30	10·3	29	135	15·7	73	98	12·4	66	51	17·2	17
1867	20	8·2	33	45	11·0	70	44	5·9	59	43	6·8	12
1868	111	15·7	33	100	16·7	66	53	23·4	60	11	14·9	29
Mean	295	10·9	34	652	14·7	72	440	12·6	62	379	13·0	17

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	11	4	4	6	W.	49	138	29·919	44·9
1864	40	15	4	0	S.E. by S.	37	25	29·996	46·0
1865	20	20	9	21	N.	34	2	29·815	48·1
1866	22	5	3	2	N.N.W.	38	0	29·953	45·7
1867	17	21	4	11	S.E. by E.	35	61	29·983	44·2
1868	44	14	23	9	W. by S.	50	0	29·810	49·0
Total -	154	79	—	—	—	—	Mean -	29·913	46·3

REMARKS.

The prevalent winds were in the octant E. to S.E., being 23 °/₀; the least, 7 °/₀, were in the octant S. to S.W.

JUNE.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	30	7·8	17	73	12·6	80	191	14·3	68	84	14·2	23
1864	39	10·2	28	15	8·6	82	184	13·3	56	53	13·0	26
1865	25	8·1	12	2	9·5	68	88	19·2	60	54	12·9	20
1866	11	6·4	26	34	15·4	71	189	17·6	57	86	11·1	24
1867	36	12·2	26	55	17·6	68	77	13·4	62	27	11·6	19
1868	—	—	—	—	—	—	121	11·0	55	72	13·9	21
Mean	141	7·5	22	179	10·6	74	850	14·8	60	376	12·8	22

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	88	12·3	27	138	13·2	61	48	7·6	68	41	10·9	11
1864	75	11·8	28	168	16·6	72	89	15·5	62	68	15·4	21
1865	39	8·3	30	324	16·2	78	126	15·5	71	25	18·1	19
1866	49	8·1	26	194	11·4	78	111	10·8	62	41	11·2	25
1867	18	11·9	39	184	17·4	72	144	13·9	63	82	11·2	23
1868	135	16·2	37	160	14·4	72	89	12·6	72	—	—	—
Mean	404	11·4	31	1,168	14·9	72	607	12·7	66	257	11·1	20

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	10	6	22	8	E.S.E.	44	21	29·760	52·3
1864	6	6	26	2	N.W. by N.	34	23	29·745	50·8
1865	20	1	2	0	S.E.	31	36	30·146	51·9
			9	18	W. by N.				
1866	16	5	16	21	N.W. by N.	40	0	29·869	53·6
1867	27	38	9	20	W. by N.	51	59	30·011	49·8
1868	31	7	14	18	S.W. by W.	48	*136	29·930	52·3
Total -	110	63	—	—	—	—	Mean -	29·910	51·8

* The strongest winds occurred during these hours. 51 miles an hour were recorded on 17th at 1 h. and 2 h. Direction lost.

Remarks.

During this month the winds between S.W. and W. prevailed, being 29 °/₀; the least, 3 °/₀, were in the octant N. to N.E.

JULY.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	14	15·3	17	3	8·0	90	24	11·4	53	73	14·3	19
1864	65	8·4	24	46	7·9	77	75	11·9	55	66	12·6	16
1865	33	14·0	32	59	11·1	79	75	13·5	55	124	14·5	21
1866	88	11·0	21	71	7·4	70	31	13·2	61	29	10·1	14
1867	168	9·6	25	101	13·3	74	145	16·8	62	47	8·8	33
1868	6	8·3	25	6	9·5	82	127	11·9	59	98	11·7	25
Mean	374	11·1	24	286	9·5	79	477	13·1	58	437	12·0	21

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	36	6·1	35	246	15·7	75	177	13·9	56	144	15·5	26
1864	115	10·3	27	178	15·2	71	133	12·8	61	64	10·2	16
1865	80	8·3	30	151	13·9	77	123	10·9	61	96	12·5	20
1866	22	8·5	25	113	12·4	51	113	8·6	54	258	9·4	18
1867	6	12·0	37	23	22·5	80	59	14·0	57	167	15·7	20
1868	90	7·5	30	225	10·7	75	177	10·3	65	4	6·0	17
Mean	349	8·8	31	936	15·1	72	782	11·8	59	733	11·6	20

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	28	27	17	0	N.W. by W.	39	0	30·050	52·1
1864	0	2	17 24 30	19 15 18	S.W. by W. S.W. by S. W.S.W.	28	0	29·886	53·2
1865	24	3	27	9	W. by S.	41	0	29·810	54·7
1866	0	19	10 11	23 21	W.S.W.	26	0	29·910	53·0
1867	10	5	4	0	S.E. by E.	37	23	29·876	51·4
1868	5	11	30	16	W.	32	0	30·020	56·0
Total -	67	67	—	—	—	—	Mean -	29·925	53·4

REMARKS.

The winds in the octant S.W. to W. prevailed, being 21 %; the least in the octant N.E. to E. being 6 %.

AUGUST.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	86	8·1	27	14	8·6	78	117	18·2	61	62	14·4	23
1864	76	11·8	18	—	—	—	42	14·9	47	115	13·3	30
1865	103	7·7	26	96	9·5	74	146	17·3	57	72	10·2	24
1866	19	6·9	30	36	6·8	77	246	13·0	56	78	10·5	26
1867	19	7·4	27	49	10·6	75	68	10·8	59	121	11·6	19
1868	51	17·1	34	23	14·2	70	115	12·4	52	133	12·9	26
Mean -	354	9·8	27	218	8·3	75	734	14·4	55	581	12·2	25

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	79	7·5	30	146	9·8	74	124	11·9	61	67	10·4	23
1864	55	14·4	28	185	14·3	75	90	13·5	66	180	13·3	14
1865	53	9·5	33	124	16·4	70	110	10·5	62	23	12·9	9
1866	49	6·5	32	106	7·9	74	118	14·1	62	80	12·2	18
1867	103	8·9	29	240	9·7	75	29	7·9	75	22	6·9	23
1868	109	9·4	26	173	18·5	71	116	17·7	65	22	15·2	24
Mean -	448	9·4	30	974	12·8	73	587	12·6	65	394	11·8	19

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	14	26	14	20	S.E.	37	23	29·752	52·8
1864	3	1	30	14	S.E.	32	0	29·968	51·8
1865	20	17	31	14	W. by S.	35	0	29·781	54·3
1866	13	12	4	16	N.W. by W.	38	0	29·652	52·8
1867	0	10	24	21	S.S.E.	27	83	29·801	54·7
1868	55	2	27	18	W. by N.	49	0	29·742	55·2
Total -	105	68	—	—	—	—	Mean -	29·783	53·6

REMARKS.

The winds in the octant S.W. to W. prevailed, being 22 %; the least in the octant N.E. to E. being 5 %.

SEPTEMBER.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to E.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	41	10·8	34	38	16·8	63	25	13·5	62	137	11·6	24
1864	1	3·0	23	7	10·0	72	81	12·7	54	232	12·4	20
1865	3	5·7	26	3	8·7	82	68	10·8	53	194	11·7	23
1866	2	16·0	45	14	15·2	77	130	14·1	59	152	15·2	17
1867	4	8·0	25	—	—	—	109	14·2	53	99	14·2	21
1868	213	11·3	26	174	14·3	73	25	16·8	65	37	13·0	27
Mean	264	9·1	30	236	10·8	73	438	13·7	58	851	13·0	22

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	105	12·7	30	224	20·2	62	136	17·4	69	12	11·7	19
1864	51	8·5	29	138	13·2	73	135	16·3	66	39	15·5	21
1865	136	10·3	34	220	15·9	65	82	14·1	71	8	9·4	23
1866	84	10·3	30	160	8·9	71	92	12·6	69	30	9·7	25
1867	92	9·9	28	235	17·3	74	77	14·9	60	55	19·6	24
1868	80	7·8	33	54	7·7	71	62	13·2	77	66	12·7	9
Mean	548	9·9	31	1,031	13·9	69	584	14·8	69	210	13·1	20

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Thermometer.
1863	36	2	12	21	W.	39	0	29·505	49·4
1864	33	11	9	5	W. by N.	49	25	29·640	51·6
1865	14	6	10	4	S.W. by W.	46	0	30·040	55·4
1866	8	12	25	0	S.S.E.	34	44	29·496	49·8
1867	43	12	27	20	W.	40	37	29·849	52·1
1868	21	9	29	1	E. by N.	37	0	29·937	50·6
Total -	155	52	—	—	—	—	Mean -	29·745	51·5

REMARKS.

The winds in the octant S.W. to W. prevailed, being 24 °/₀; the least, 5 °/₀, were in the octant N.W. to N.

OCTOBER.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	—	—	—	3	9·3	82	201	20·0	64	122	13·2	11
1864	117	21·8	41	126	15·5	70	103	9·2	64	91	10·6	27
1865	115	10·7	25	127	17·3	77	162	20·8	68	56	16·8	30
1866	17	3·4	21	—	—	—	109	18·1	51	210	19·2	25
1867	—	—	—	3	3·0	68	71	19·9	61	99	13·1	21
1868	9	7·4	24	—	—	—	42	14·7	57	134	20·0	14
Mean	258	7·2	28	259	7·5	74	688	17·1	61	712	15·5	21

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	76	12·1	29	231	18·9	71	64	16·7	69	24	15·8	34
1864	28	6·1	24	19	12·2	78	85	23·6	62	119	12·8	17
1865	15	5·7	20	26	7·7	71	55	22·3	53	175	19·9	19
1866	76	9·1	25	191	18·1	77	109	18·4	66	22	15·4	29
1867	128	9·4	25	147	13·8	75	63	19·2	61	79	17·8	23
1868	133	12·4	29	254	22·9	75	90	20·4	71	29	20·8	17
Mean	456	9·1	25	868	15·6	75	466	20·1	64	448	17·1	23

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	80	8	11	6	S.E. by E.	45	15	29·504	46·7
1864	61	56	20	5, 6	N.N.W.	54	0	29·954	45·6
1865	111	13	29	23	N.W. by W.	46	0	29·629	44·9
1866	121	10	17	9, 11, 20	S.E. by S.	45	0	29·977	48·7
1867	36	26	2	8 9	N.W. by W. N.W.	48	128	29·688	46·2
1868	133	3	15 26	11 7	W. N.N.W.	46	50	29·636	45·5
Total -	542	116	—	—	—	—	Mean -	29·731	46·3

REMARKS.

The winds in the octant S.W. to W. prevailed, being 20 °/₀; the least, 6 °/₀, being in the octant N. to N.E.

NOVEMBER.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	15	8·5	27	16	13·3	78	63	14·0	59	184	20·1	18
1864	70	4·9	25	29	19·4	74	174	25·0	60	111	16·6	18
1865	34	16·1	18	48	8·5	74	66	10·5	57	136	21·3	24
1866	32	14·4	29	2	18·0	56	8	27·4	53	66	26·5	20
1867	57	14·0	25	11	15·3	70	16	13·5	65	43	8·8	25
1868	107	11·0	23	49	2·3	83	90	17·5	55	162	15·8	23
Mean -	315	11·5	25	155	12·8	73	417	18·0	58	702	18·2	21

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	118	11·0	25	124	16·3	78	96	20·2	66	87	13·4	17
1864	64	11·6	26	145	17·3	73	79	13·5	69	34	14·8	17
1865	70	10·0	29	133	15·5	75	140	20·7	62	86	11·3	14
1866	41	14·1	29	245	25·5	78	156	23·0	61	169	17·9	18
1867	46	9·2	28	211	22·0	78	174	20·7	65	149	19·5	25
1868	30	8·8	34	56	32·3	74	55	26·4	61	113	18·5	19
Mean -	369	10·8	29	914	21·5	76	700	20·8	64	638	15·9	18

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	81	15	4	11	W.N.W.	43	2	29·625	43·3
1864	100	14	25	14	S.E. by E.	48	0	29·653	43·4
			25	15	S.E. by E.				
			27	12	S.E. by S.				
1865	109	7	25	14	N. by E.	47	0	29·732	42·0
1866	193	1	5	4	S.W. by W.	65	0	29·602	41·2
			8	6	S.W.				
1867	135	3	19	6	N.N.W.	44	10	30·152	44·1
1868	150	50	3	1	W. by N.	49	8	29·922	39·0
Total -	768	90	—	—	—	—	Mean -	29·781	42·2

REMARKS.

The winds in the octant S.W. to W. prevailed, being 21 %; the least were in the octant N.E. to E., being only 4 %

DECEMBER.

Years.	From N. to N.E.			From N.E. to E.			From E. to S.E.			From S.E. to S.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	24	13·1	23	—	—	—	20	13·0	48	62	12·8	28
1864	20	9·4	28	41	8·9	77	144	15·1	59	222	16·5	20
1865	—	—	—	2	21·5	90	109	25·9	61	198	24·5	11
1866	33	14·5	34	25	17·5	61	62	12·2	57	129	14·6	19
1867	41	28·9	18	37	1·4	81	16	19·3	51	69	17·5	25
1868	19	7·3	41	35	7·0	84	89	18·7	53	244	15·2	12
Mean -	137	12·2	29	140	9·4	79	440	17·4	55	924	16·9	19

Years.	From S. to S.W.			From S.W. to W.			From W. to N.W.			From N.W. to N.		
	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.	Hours.	V.	D.
			°			°			°			°
1863	49	21·7	32	210	31·2	81	234	31·0	69	110	25·8	15
1864	78	10·8	26	116	24·6	72	46	26·1	71	36	15·7	18
1865	177	17·8	24	162	29·4	77	74	26·1	66	20	19·7	32
1866	141	13·7	27	194	27·4	71	89	22·7	68	69	22·9	27
1867	84	12·3	28	170	20·4	72	165	25·5	65	112	23·6	17
1868	88	11·0	27	47	10·3	62	76	20·2	70	35	20·6	5
Mean -	617	14·6	27	899	23·9	73	684	25·3	68	382	21·4	19

Years.	30 +	0	Maximum Force observed.				Hours lost.	Monthly Means.	
			Day.	Hour.	D.	V.		Barometer.	Ther.
1863	341	9	12	1	W. by N.	62	26	29·565	41·4
1864	78	5	29	0 1	S.W. by W. W.S.W.	46	35	29·862	41·5
1865	239	2	6 30	9 19 20	S.E. by S. S.W. by W. W.S.W.	56	0	29·874	44·3
1866	134	2	3	7	W.	53	0	29·538	40·6
1867	163	25	2	2	N.	60	25	29·823	40·6
1868	77	5	21	6	S.E. by E.	54	106	29·260	40·5
Total -	1,032	48	—	—	—	—	Mean -	29·654	41·5

REMARKS.

The prevalent winds were in the octants S.E. to S. 22 °/₀ and S.W. to W. 21 °/₀; the least were in the octant N. to N.E., being only 3 °/₀.

APPENDIX III.

MEAN MONTHLY RAINFALL at various Stations, to which reference will be made in the Quarterly Weather Reports.

In continuation of Appendix III. of Quarterly Weather Report, 1870.

IT is intended in future to publish returns of rainfall from certain stations, whence observations are received regularly at the Meteorological Office.

In order to be able to state whether the monthly fall in each year is greater or less than the average, it has been necessary to obtain or calculate these averages.

The source whence the figures have been derived is stated in every instance.

The averages are necessarily very different in value; thus, for Helston, Mr. Moyle gives an average of 32 years, while for Bidston observatory only four years are as yet obtainable.

In some cases, most particularly at Thurso, the average is for a locality different from that whence the observations are now derived. Holburn Head Lighthouse lies at Scrabster, on the eastern slope of the headland, about four miles from Thurso, to the westward, while the ground about Thurso is much more level than that near Holburn Head. It has, however, been thought well to take this average for Thurso as none other is obtainable.

MEAN MONTHLY RAINFALL at several Stations, belonging to or in communication with the METEOROLOGICAL COMMITTEE.

Stations.	Position. Latitude. N.	Position. Longitude. W.	Height of Gauge. Above Ground.	Height of Gauge. Above Sea.	Average Fall. Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.	No. of Years.	Limiting Dates.	Authority.
S. R. OBSERVATORIES OF METEOROLOGICAL COMMITTEE.																				
Valencia	51 54 36	10 18 10	2 6	40	7·05	3·82	4·90	3·45	3·00	2·84	2·67	4·56	5·15	6·41	6·07	6·70	56·62	8	1862–1869	Brit. Assoc. Reports for 1864, 1866, 1868, and 1870.
Armagh	54 21 13	6 38 52	1 5	204	2·73	1·92	2·21	2·09	2·24	2·13	2·52	2·97	2·34	3·24	2·51	2·78	29·68	18	1853–1870	Letter 1180/72.
Glasgow	55 52 43	4 17 30	0 1	180	5·07	3·92	3·37	2·46	2·49	2·73	3·15	4·24	3·63	4·27	3·39	4·11	42·83	12	1860–1871	Letter 1108/72.
Aberdeen	57 9 51·3	2 5 59·6	0 4	95	2·84	2·33	1·97	2·07	1·82	1·46	2·21	2·98	2·40	3·19	2·01	3·14	28·42	10	1862–1871	Brit. Assoc. Reports for 1864, 1866, 1868, and 1870.
Falmouth	50 9 24	5 3 30	5 6	(200?)	4·41	3·51	2·86	2·43	2·57	2·55	2·64	2·79	3·16	4·27	5·20	4·19	40·58	20	1837–1856	Letter 1057/72.
Stonyhurst	53 50 40	2 28 10·2	0 9	376	3·99	3·89	2·92	2·45	2·40	3·70	3·86	4·62	4·39	5·30	3·92	4·58	46·02	24	1847–1870	Results of meteorological and magnetical observations for 1871.
Kew	51 28 6	0 18 47	1 1	19	1·98	1·35	1·69	1·42	1·83	2·39	1·83	2·20	2·63	2·13	1·73	1·71	22·90	13	1859–1871	Letter 1066/72.
ANEMOMETER STATIONS.																				
Alnwick Castle	55 25 0	1 43 0 {1862–63 / 1864–68}	0 6 / 6 0	400 / 290	2·58	1·61	2·33	1·57	1·31	1·72	2·38	2·81	2·24	3·83	2·57	2·61	28·56	8	1862–1869	Brit. Assoc. Reports for 1864, 1866, 1868, and 1870.
Sandwick	59 2 0	3 18 0	2 0	78	3·92	3·90	3·02	2·58	1·88	1·90	1·83	2·91	3·80	4·51	4·22	4·20	38·67	8	1862–1869	Do. do.
TELEGRAPH STATIONS.																				
Sumburgh Head	59 51 0	1 17 0	3 4	265	3·21	2·21	1·46	1·87	1·39	1·09	1·35	2·40	2·26	2·79	2·55	3·56	26·14	8	1862–1869	Brit. Assoc. Reports for 1864, 1866, 1868, and 1870.
Thurso (Holburnhead)	58 36 0	3 31 0	0 4	60	2·37	3·48	2·33	1·77	1·18	1·50	1·31	2·80	3·28	3·07	3·80	3·52	30·41	7	1863–1869	Do. do.
Wick (Nosshead)	55 27 0	3 6 0	3 4	127	1·67	2·16	1·92	1·34	1·31	1·25	1·38	2·32	2·38	2·92	2·76	2·71	24·12	8	1862–1869	Do. do.
North Shields	55 0 0	1 27 0	1 0	124	2·04	1·54	1·84	1·82	2·13	1·98	1·81	2·44	2·24	2·68	2·22	2·52	25·26	10	1862–1871	Brit. Assoc. Reports for 1864, 1866, 1868, and 1870, and Symons' Met. Mag. for 1870 and 1871.
Liverpool, (Bidston Observatory)	53 24 0	1 2 0	0 6	180	1·93	1·57	1·39	1·65	2·20	1·25	1·20	2·14	3·29	4·20	2·59	3·21	26·62	4	1868–1871	Letter 1129/72.
Pembroke	51 48 0	4 58 0	2 0	60	5·91	3·57	3·67	2·85	2·94	2·09	2·46	3·37	4·98	6·01	4·41	4·98	47·24	10	1862–1871	Brit. Assoc. Reports for 1864, 1866, 1868, and 1870, and Symon's Met. Mag. for 1870 and 1871.
EXTRA STATIONS (VOLUNTEER OBSERVERS).																				
Barnstaple	51 5 0	4 25 0	0 6	31	4·37	2·76	2·57	2·24	2·29	2·31	2·25	3·00	4·04	5·20	3·11	3·77	37·91	10	1862–1871	Brit. Assoc. Reports for 1864, 1866, 1868, and 1870; and Symon's Met. Mag. for 1870 and 1871.
Dublin	53 21 0	6 16 0	17 0	31	2·73	1·68	1·80	2·55	2·12	2·60	2·38	2·54	2·32	3·15	2·75	2·40	29·02	20	1841–1860	Proceedings Royal Irish Academy, vol. vii., p. 218.
Florence Court, co. Fermanagh	54 21 0	7 38 0	11 4	300	4·98	3·27	3·75	2·65	2·21	2·40	2·98	3·58	3·38	4·10	3·82	4·80	41·92	16	1856–1871	Letter 1301/72.
Galway	53 17 0	9 3 0	6 0	25	6·33	4·51	3·54	3·01	3·65	2·89	3·33	3·98	4·63	5·00	4·17	5·00	50·04	10	1862–1871	Letter 1085/72.
Guernsey	49 27 0	2 35 0	12 0	204	4·72	2·60	3·69	1·84	2·57	1·47	1·58	2·39	3·59	4·41	3·84	3·87	36·57	8	1862–1869	Brit. Assoc. Reports for 1864, 1866, 1868, and 1870.
Helston	50 7 0	5 16 0	5 0	115	4·27	2·84	3·01	2·34	2·34	2·15	2·48	2·73	3·15	4·08	4·47	3·71	37·57	32	1840–1871	Letter 1118/72.
Jersey	49 13 0	2 7 0 {1862–63 / 1864–67}	5 0 / 0 6	45 / 50	3·42	2·08	3·33	1·89	1·97	1·43	1·75	2·30	3·00	3·67	3·04	3·18	31·06	8	1862–1869	Brit. Assoc. Reports for 1864, 1866, 1868, and 1870.
Rugby	52 23 0	1 16 0 {1862–63 / 1864–67}	2 4 / 2 4	315 / 384	2·09	1·41	1·95	1·46	1·59	2·66	2·04	2·61	2·80	2·61	1·48	1·54	24·24	6	1862–1867	Brit. Assoc. Reports for 1864, 1866, 1868.

APPENDIX IV.

CONSTANTS for the DETERMINATION of the MONTHLY MARCH of ATMOSPHERICAL PRESSURE, TEMPERATURE, and VAPOUR TENSION for the Years 1869, 1870.

In Appendix IV. to the Quarterly Weather Report for 1870 will be found a translation of Bessel's paper "On the Determination of the Law of a Periodical Phenomenon." The general type of the equation on which this determination is based is given in Section 2 in the following form:—

$$E = a + a_1 \cos\theta + b_1 \sin\theta + a_2 \cos 2\theta + b_2 \sin 2\theta + \&c.$$

This is then transformable (Herschel's Meteorology, p. 145) into the following expression:—

$$E = A + B_1 \sin(\theta + C_1) + B_2 \sin(2\theta + C_2) + B_3 \sin(3\theta + C_3) + \&c.$$

In the present investigation the development has not been carried beyond the term involving B_3.

It remains to say a few words as to the division of the year which has been adopted. In the Report of the Leipzig Conference, at p. 28, it will be seen that nearly half the members of that meeting were desirous that the ordinary civil division of the year into calendar months should be given up in favour of a more equable division in which February should receive 30 days.

It was furthermore unanimously agreed that, whatever should be the system finally employed, the commencement of its adoption should be 1871, and that uniform periods of five years each—"lustral" periods—should be introduced.

Inasmuch as means for the civil months for the two years under consideration have been published, these means have been used for the present discussion; but it must be understood that the identical plan pursued on this occasion will not necessarily be followed when the time for calculation of the "lustral" means for the years 1871–5 shall have arrived. The Committee will hope to carry out all future publication of observational results, and of means and discussions based thereupon, as far as possible in accordance with whatever plan, if any, may be recommended for universal adoption by the General Meteorological Congress which is expected to meet at Vienna in the course of the year 1873.

VALUES of the CONSTANTS in the Periodical Expression for the Annual Variations of Temperature, Atmospheric Pressure, and Tension of Vapour, at the Seven Observatories in the Years 1869 and 1870.

		A.	B_1.	C_1.	B_2.	C_2.	B_3.	C_3.
				VALENCIA.				
		°	°	° ′	°	° ′	°	° ′
Temperature	1869	52·3	7·1	240 1	1·6	10 33	0·7	317 49
	1870	51·1	9·8	243 47	1·5	338 11	0·4	23 27
		in.	in.		in.		in.	
Atmospheric pressure	1869	29·927	0·100	247 5	0·005	333 18	0·149	240 31
	1870	29·934	0·166	299 25	0·016	17 34	0·066	139 4
		in.	in.		in.		in.	
Tension of vapour	1869	0·319	0·084	233 58	0·025	21 36	0·007	281 19
	1870	0·313	0·118	243 54	0·020	8 59	0·007	284 10
				ARMAGH.				
		°	°	° ′	°	° ′	°	° ′
Temperature	1869	48·6	9·0	244 10	3·0	9 34	1·1	330 57
	1870	47·9	11·9	254 22	1·4	351 35	0·6	5 51
		in.	in.		in.		in.	
Atmospheric pressure	1869	29·694	0·144	268 14	0·031	136 54	0·095	246 28
	1870	29·722	0·144	309 5	0·037	26 8	0·079	141 25
		in.	in.		in.		in.	
Tension of vapour	1869	0·286	0·080	234 52	0·034	9 21	0·010	313 9
	1870	0·282	0·107	247 24	0·020	24 46	0·007	326 46
				GLASGOW.				
		°	°	° ′	°	° ′	°	° ′
Temperature	1869	47·0	9·4	246 16	2·9	8 40	1·0	346 15
	1870	46·4	12·1	254 0	1·2	353 52	0·4	41 1
		in.	in.		in.		in.	
Atmospheric pressure	1869	29·680	0·126	280 51	0·005	165 7	0·059	219 23
	1870	29·722	0·127	317 55	0·062	26 6	0·076	131 57
		in.	in.		in.		in.	
Tension of vapour	1869	0·258	0·080	234 23	0·037	12 56	0·007	334 39
	1870	0·261	0·101	245 55	0·021	37 45	0·002	66 15

		A.	B_1.	C_1.	B_2.	C_2.	B_3.	C_3.
				ABERDEEN.				
		°	°	° ′	°	° ′	°	°
Temperature -	1869	46·1	9·2	244 20	2·9	7 25	0·7	359 24
	1870	46·1	11·6	250 54	0·9	341 11	0·6	33 20
		in.	in.		in.			
Atmospheric pressure	1869	29·740	0·156	283 46	0·020	1341 5	0·044	224 21
	1870	29·801	0·116	314 49	0·072	205 1	0·064	136 4
		in.	in.		in.		in.	
Tension of vapour -	1869	0·249	0·075	233 27	0·033	9·51	0·006	356 28
	1870	0·254	0·081	243 20	0·018	102 12	0·002	307 34
				FALMOUTH.				
		°	°	° ′	°	° ′	°	° ′
Temperature -	1869	51·8	7·8	239 9	2·3	19 10	1·1	1 32
	1870	50·7	11·2	242 34	1·2	5 12	0·8	342 9
		in.	in.		in.		in.	
Atmospheric pressure	1869	29·771	0·074	234 27	0·049	28 41	0·091	234 54
	1870	29·777	0·151	299 10	0·004	199 14	0·068	95 39
		in.	in.		in.		in.	
Tension of vapour -	1869	0·323	0·084	232 38	0·028	23 50	0·011	24 32
	1870	0·298	0·110	238 2	0·019	8 6	0·009	165 5
				STONYHURST.				
		°	°	° ′	°	° ′	°	° ′
Temperature -	1869	47·9	9·9	244 46	2·8	8 15	0·9	346 24
	1870	47·1	12·8	253 10	1·3	359 19	0·6	16 38
		in.	in.		in.		in.	
Atmospheric pressure	1869	29·533	0·105	265 30	0·031	45 39	0·062	243 42
	1870	29·563	0·141	312 57	0·038	12 34	0·069	120 3
		in.	in.		in.		in.	
Tension of vapour -	1869	0·273	0·090	235 41	0·036	15 54	0·007	358 0
	1870	0·264	0·108	246 43	0·020	43 42	0·009	318 15

	A.	B_1.	C_1.	B_2.	C_2.	B_3.	C_3.
	KEW.						
	°	°	° ′	°	° ′	°	° ′
Temperature - 1869	50 2	10·8	248 9	2·7	12 9	1·0	32 6
Temperature - 1870	49·1	14·1	253 10	1·5	41 56	0·9	329 31
	in.	in.		in.		in.	
Atmospheric pressure 1869	29·945	0·062	234 14	0·054	51 33	0·057	258 23
Atmospheric pressure 1870	29·957	0·126	313 32	0·011	51 18	0·071	89 16
	in.	in.		in.		in.	
Tension of vapour - 1869	0·296	0·104	234 36	0·037	351 14	0·029	39 3
Tension of vapour - 1870	0·272	0·109	241 41	0·024	36 55	0·013	299 36

APPENDIX V.

TABLE I.—MEAN MONTHLY RESULTS from the continuous RECORDS at the SEVEN BRITISH OBSERVATORIES, for the Year 1871.—In Degrees Centigrade and Millimètres.

VALENCIA.

MONTHS.	THERMOMETER.					BAROMETER.					PRESSURE.	
	Means.	Extremes. Maximum.		Extremes. Minimum.		Means.	Extremes. Maximum.		Extremes. Minimum.		Vap.	Dry Air.
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°c.	D. H.	°c.	D. H.	°c.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	6·17	6 3	10·72	24 20	−0·33	755·38	23 22	768·79	15 10	**715·61**[a]	5·87	749·51
February -	8·83	6 23	11·61	1 14	2·78	58·78	21 11	74·82	2 17	37·04	7·34	51·44
March -	8·72	24 3	17·89	14 17	1·28	59·93	28 23	**76·26**	5 21	34·60	6·58	53·35
April -	10·39	9 3	14·83	3 16	4·44	54·57	4 0	66·69	18 6	33·87	7·60	46·97
May -	12·83	29 2	**22·72**	9 17	5·72	64·12	20 0	71·89	23 20	51·67	8·18	55·94
June -	14·17	1 3	20·78	23 16	7·94	60·18	25 3	72·28	29 0	45·15	9·43	50·75
July -	14·67	16 0	19·28	9 17	10·17	56·45	17 11	66·91	25 18	48·02	10·26	46·19
August -	15·83	6 4	21·78	21 14	10·56	61·05	27 0	74·31	23 21	44·74	11·02	50·03
September	13·17	16 3	21·39	23 18	3·89	58·23	13 10	70·01	26 18	34·84	8·69	49·54
October -	11·94	12 2	16·78	7 19	3·72	56·73	24 22	71·48	28 14	33·74	8·51	48·22
November	8·17	2 2	14·50	11 12	1·00	60·83	30 23	72·20	6 16	50·10	6·40	54·43
December	7·28	18 1	12·50	5 19	**−0·89**	62·14	10 23	74·61	27 16	36·87	5·99	56·15
Annual -	11·01	..	..	..	..	759·03	..	..	..	..	7·99	751·04

ARMAGH.

	°c.	D. H.	°c.	D. H.	°c.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	2·39	6 2	9·56	24 12	−2·11	749·64	24 11	764·91	15 16	**710·07**	4·86	744·78
February -	7·06	19 2	12·22	1 19	0·50	53·07	21 11	66·74	5 2	35·75	6·43	46·64
March -	6·83	24 3	17·00	14 17	−3·56	54·60	28 12	**72·30**	6 4	34·48	5·89	48·71
April -	8·28	13 1	15·39	8 17	−1·06	50·15	6 21	60·77	18 19 19 2	30·59	6·58	43·57
May -	11·22	7 5	20·72	16 16	0·00	59·22	28 10	66·56	2 18	48·45	7·42	51·80
June -	13·06	15 2	21·67	9 17	4·83	55·31	2 11	66·66	29 9	41·34	8·61	46·70
July -	14·11	14 2	21·22	10 17	8·72	49·87	17 11	59·24	25 12	37·35	9·88	39·99
August -	15·11	9 2	**23·56**	14 17 21 17	7·61	55·89	27 9	68·72	24 0	[b]34·60	10·49	45·40
September	11·17	3 2	19·50	28 18	1·72	54·55	13 20	67·40	30 23	31·33	8·23	46·32
October -	9·67	14 1	16·61	9 19	−0·56	52·51	9 14	66·00	1 1	30·84	7·67	44·84
November	5·00	14 2	10·89	12 19	−1·11	56·73	30 23	66·66	7 18	41·51	5·53	51·20
December	4·44	18 2	12·67	4 17	**−6·06**	55·84	1 12	68·64	27 16	32·04	5·59	50·25
Annual -	9·03	..	..	..	..	753·95	..	..	..	..	7·27	746·68

[a] Is the lowest reading *recorded*, but, the light having been cut off during the two subsequent hours, it is doubtful whether the above is the true minimum.

[b] Doubtful, the curve for the subsequent hours being too indistinct.

The barometrical readings are reduced to 0 centigrade, but not to sea level. See headings to Table II.

NOTE.—The *errata* discovered in the original tables have been corrected before the conversion was commenced.

Table I.—Mean Monthly Results, &c.—*continued.*

GLASGOW.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°c.	D. H.	°c.	D. H.	°c.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	1·22	6 3	8·06	25 10	−4·94	749·89	24 8	766·18	15 20	**714·16**	4·40	745·49
February -	5·44	19 2	11·06	1 0	−2·28	52·79	28 21	66·91	5 6	35·09	5·89	46·90
March -	6·11	25 2	16·11	14 18	**−5·00**	54·16	28 10	**72·07**	7 14	33·89	5·62	48·54
April -	6·17	13 2	14·50	7 17	−0·39	50·84	6 20	62·19	19 7	33·13	5·69	45·15
May -	11·06	29 4	23·56	16 16	−1·67	58·51	6 20	66·84	3 12	42·15	6·94	51·57
June -	12·61	14 4	20·50	2 16	4·94	55·64	2 13	65·83	17 16	42·22	7·80	47·84
July -	14·06	14 2	21·28	28 17	7·83	49·32	16 2	58·83	25 16	35·65	9·24	40·08
August -	14·83	10 3	**23·61**	19 15	6·61	54·95	27 20	67·88	24 4	32·04	9·88	45·07
September	11·11	10 2	19·11	29 19	1·61	54·77	13 21	67·93	30 23	33·06	7·80	46·97
October -	9·00	18 0	15·56	9 18	−2·17	52·92	9 20	67·55	1 4	32·19	7·21	45·71
November	4·06	14 2 15 0	10·06	17 21	−4·83	57·01	30 22	65·80	7 18	40·09	5·16	51·85
December	4·06	18 4	11·61	4 15	−3·89	54·95	1 10	67·91	28 1	33·67	5·26	49·69
Annual -	8·31	..	..	..	..	753·81	..	..	..	..	6·74	747·07

ABERDEEN.

	°c.	D. H.	°c.	D. H.	°c.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	1·61	13 21	7·39	3 8	**−6·94**	752·16	29 22	769·74	16 2	**719·24**	4·37	747·79
February -	5·11	25 1	13·50	28 9	0·00	54·55	28 14	71·03	19 19	39·23	5·41	49·14
March	6·00	25 0	17·17	14 16	−3·56	57·11	28 9	**74·00**	7 17	34·55	5·43	51·68
April -	5·00	12 3	15·17	5 17	−2·61	54·31	5 23	65·37	15 11	37·58	5·26	49·05
May -	9·00	22 2	19·11	16 14	0·33	61·20	28 9	70·11	3 13	43·73	6·45	54·75
June -	10·33	17 1	18·89	24 15	4·06	59·12	25 16	67·86	17 14	43·75	7·42	51·70
July -	14·06	16 23	22·22	3 14	8·22	51·57	16 9	60·41	25 17	37·14	9·17	42·40
August -	14·94	6 5	**23·06**	21 17	7·06	57·19	27 21	69·69	24 9	30·64	9·68	47·51
September	10·94	3 0	19·06	29 19	2·39	57·92	16 11	71·46	20 23	38·49	7·85	50·07
October -	9·17	15 3	14·50	9 19	1·00	55·56	9 21	69·79	1 5	36·31	7·19	48·37
November	3·94	1 0	9·61	23 18	−1·78	59·19	4 9 30 23	68·21	9 17	40·04	5·06	54·13
December	3·56	18 18	12·67	3 20	−2·94	56·24	1 8	69·48	18 10	35·55	4·96	51·28
Annual -	7·81	..	..	..	..	756·34	..	..	..	..	6·52	749·82

The barometrical readings are reduced to **0**, but not to sea level. See headings to Table II.

Table I.—Mean Monthly Results, &c.—*continued.*

FALMOUTH.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	°c.	D. H.	°c.	D. H.	°c.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	4·39	6 2 10 4	9·72	27 19	**−2·11**	751·60	12 11	764·42	15 13	**724·98**	5·13	746·47
February -	8·17	18 1	12·50	10 19	1·89	57·36	21 23	70·01	10 1	41·51	7·11	50·25
March -	7·94	27 2	14·83	29 15	2·22	57·21	28 21	69·23	5 22	40·45	6·45	50·76
April -	9·83	28 23	15·00	4 17	4·28	52·26	4 9	62·09	18 19	34·50	7·72	44·54
May -	11·67	29 5	20·28	11 14	5·33	58·83	20 0	66·13	24 16	50·79	7·67	51·16
June -	13·61	1 1	20·39	4 16	6·33	55·43	25 11	65·21	18 4	44·74	9·14	46·29
July -	15·22	16 0	21·67	30 7	10·89	53·86	5 13	62·42	2 6	42·51	10·49	43·37
August -	17·28	13 1	**26·11**	26 18	11·39	57·21	26 22	70·04	17 21	34·08	11·81	45·40
September	14·11	2 1	20·28	23 10	7·39	52·51	13 12	62·07	27 5	25·95	9·68	42·83
October -	12·22	15 1	16·61	7 15 24 20	7·17	54·52	24 22	67·67	1 3	37·68	8·74	45·78
November	7·33	1 1	12·61	17 17	0·56	55·61	18 23	65·95	7 15	44·29	5·92	49·69
December	6·22	30 1	11·06	7 19	−1·67	59·58	12 23	**71·21**	28 1	35·37	5·72	53·86
Annual-	10·67	..	..	..	..	755·50	..	..	..	..	7·97	747·53

STONYHURST.

	°c.	D. H.	°c.	D. H.	°c.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	0·22	6 7	8·61	3 22	**−8·72**	746·49	26 23	759·98	15 18	**716·52**	3·99	742·50
February -	5·28	19 2	10·50	11 7	−2·61	50·25	28 22	64·07	9 22	30·39	5·79	44·46
March -	6·83	25 1	18·17	14 19	−[a]3·67	51·42	28 9	**65·98**	15 15	33·77	5·72	45·70
April -	7·56	29 3	15·33	7 17	−1·22	46·32	6 20	57·85	19 3	27·19	6·13	40·19
May -	10·72	24 3	23·39	16. 16	−0·22	54·24	6 20	62·07	3 15	44·81	6·96	47·28
June -	12·33	12 4 14 3	19·78	4 16	3·28	50·79	25 22	60·15	17 15	38·72	7·75	43·04
July -	14·17	14 23	20·22	31 15	8·00	46·57	16 0	55·94	25 18	32·14	9·63	36·94
August -	16·28	10 3	**26·83**	21 17	5·61	51·86	27 8	64·27	24 4	35·75	10·70	41·16
September	11·44	1 2 11 2	20·67	24 18	2·39	49·67	13 21	62·52	27 9	27·62	8·02	41·65
October -	9·28	18 1	17·72	8 18	0·44	49·62	12 12	63·66	1 5	26·58	7·37	42·25
November	3·56	14 13	9·78	17 19	−3·94	52·06	18 22	61·61	7 23	36·62	5·01	47·05
December	4·00	18 6	11·44	7 18	−6·56	52·51	7 22	64·53	28 3	31·05	5·33	47·18
Annual-	8·47	..	..	..	..	750·15	..	..	..	..	6·87	743·28

[a] Doubtful, the curve being indistinct for the two preceding hours.

The barometrical readings are reduced to 0, but not to sea level. See headings to Table II.

Table I.—Mean Monthly Results, &c.—*continued.*

KEW.

Months.	Thermometer.					Barometer.					Pressure.	
	Means.	Extremes.				Means.	Extremes.				Vap.	Dry Air.
		Maximum.		Minimum.			Maximum.		Minimum.			
		Day.	Ther.	Day.	Ther.		Day.	Bar.	Day.	Bar.		
	° c.	D. H.	° c.	D. H.	° c.	mm.	D. H.	mm.	D. H.	mm.	mm.	mm.
January -	1·06	6 16	7·00	1 7	**−7·11**	756·91	12 14	768·21	15 19	**732·52**	4·40	752·51
February -	6·11	27 2	13·33	10 20	−3·56	62·17	28 22	74·18	10 3	41·64	5·99	56·18
March -	7·28	24 2	19·22	2 18	−0·67	62·39	1 0	73·52	15 19	42·02	5·89	56·50
April -	9·22	12 2	17·00	10 16	−0·89	56·78	6 11	67·15	19 1	40·22	6·83	49·95
May -	11·17	24 4	[a]25·39	11 18	1·11	63·36	6 22	71·01	25 1	55·99	7·04	56·32
June -	12·89	16 2	22·83	3 14	4·00	59·68	25 23	68·44	17 7	48·67	8·58	51·10
July -	16·39	17 5	26·39	30 16	8·61	57·77	5 21	67·30	24 15	44·89	10·24	47·53
August -	17·94	12 3	**29·67**	27 18	8·00	62·02	27 13	73·65	18 6	46·37	10·92	51·10
September	14·00	1 3	25·89	22 18	3·00	55·61	13 22	68·82	27 14	34·33	9·14	46·47
October -	9·44	18 2	18·56	12 16	−0·78	60·54	12 12	74·36	1 6	38·72	7·57	52·97
November	3·17	15 0	11·67	18 20	−6·56	61·25	18 22	73·55	7 20	47·84	4·88	56·37
December -	3·72	19 1	9·72	7 20	−5·67	64·17	7 22	**74·82**	20 5	43·59	5·72	58·45
Annual -	9·37	..	..	..	..	760·22	..	..	..	..	7·27	752·95

[a] The corrected reading of Phillips' maximum thermometer, the curve being very faint.

The barometrical readings are reduced to **0**, but not to sea level. See headings to Table II.

TABLE II.—PART 1.

FIVE-DAY MEANS of the DRY and WET-BULB THERMOMETERS and BAROMETER, from the continuous Records at the Seven BRITISH OBSERVATORIES, January to June 1871.

Five-Day Periods.	Thermometer. Valencia. 3·66 m. Dry.	Valencia. 3·66 m. Wet.	Armagh. 1·22 m. Dry.	Armagh. 1·22 m. Wet.	Glasgow. 2·13 m. Dry.	Glasgow. 2·13 m. Wet.	Aberdeen. 12·50 m. Dry.	Aberdeen. 12·50 m. Wet.	Falmouth. 3·35 m. Dry.	Falmouth. 3·35 m. Wet.	Stonyhurst. 2·13 m. Dry.	Stonyhurst. 2·13 m. Wet.	Kew. 3·05 m. Dry.	Kew. 3·05 m. Wet.	Barometer. Valencia. 7·01 m.	Armagh. 63·09 m.	Glasgow. 66·08 m.	Aberdeen. 28·82 m.	Falmouth. 64·31 m.	Stonyhurst. 110·08 m.	Kew. 10·36 m.	Five-Day Periods.
	°c.	°c.	°c.	°c.	°c.	°c.	°c.	°c.	°c.	°c.	°c.	°c.	°c.	°c.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	
Jan. 1–5	8·00	6·78	3·61	3·17	2·11	1·50	1·06	0·39	5·39	4·22	−1·33	−2·00	−1·17	−1·94	760·05	752·38	751·86	753·60	756·48	750·38	762·42	Jan. 1–5
„ 6–10	7·28	5·89	2·06	1·50	1·61	0·89	1·28	(0·50	6·00	4·78	0·89	0·44	1·94	1·33	55·82	46·24	43·95	44·41	49·42	40·98	52·72	„ 6–10
„ 11–15	6·78	5·72	3·94	3·22	3·67	2·83	3·44	2·50	5·72	4·33	1·94	1·06	1·72	(1·39)	52·01	46·13	45·93	47·43	51·83	44·56	57·85	„ 11–15
„ 16–20	5·44	4·17	2·33	1·72	−1·94	1·17	1·78	0·83	4·72	3·72	0·94	0·28	2·61	2·22	41·36	34·50	34·65	37·40	37·53	31·86	42·91	„ 16–20
„ 21–25	3·50	2·06	1·06	0·50	−1·39	−1·83	0·78	−0·11	2·44	1·33	0·39	−0·50	1·61	0·94	61·35	56·34	57·64	60·44	53·30	51·37	57·90	„ 21–25
„ 26–30	6·39	5·22	1·50	0·39	0·28	−0·94	1·17	0·11	2·17	0·89	−1·28	−2·22	−0·22	(−1·06)	61·27	60·51	63·05	66·79	60·29	57·82	66·05	„ 26–30
„ 31–4	7·33	6·33	3·89	3·00	1·22	(0·72)	2·72	1·83	6·44	5·61	1·83	1·11	3·44	3·06	49·06	50·20	54·06	58·71	49·67	49·03	58·76	„ 31–4
Feb. 5–9	9·50	8·39	7·56	6·72	5·50	4·83	4·44	3·72	9·06	8·22	6·11	5·44	7·39	6·22	60·03	50·40	49·26	51·83	57·39	46·93	59·50	Feb. 5–9
„ 10–14	8·61	7·61	6·50	5·67	4·28	3·56	3·22	2·44	7·39	6·44	3·44	2·56	3·00	2·17	56·14	50·45	51·04	53·40	54·40	48·67	59·98	„ 10–14
„ 15–19	9·67	8·83	9·00	7·78	7·89	6·94	7·61	6·28	8·83	8·00	7·33	6·44	7·83	6·83	59·60	53·04	52·03	52·56	59·95	51·26	64·68	„ 15–19
„ 20–24	8·22	7·17	7·33	6·00	7·17	5·56	7·11	4·78	7·06	5·89	5·89	4·78	6·28	4·89	71·38	62·12	57·90	56·27	65·80	56·24	68·01	„ 20–24
„ 25–1	9·22	8·33	6·94	5·94	5·28	3·89	4·94	3·33	9·11	8·44	5·33	4·06	6·89	5·44	57·26	55·00	56·53	59·12	57·85	52·89	64·61	„ 25–1
March 2–6	9·78	8·33	9·11	7·56	9·06	7·33	(8·89)	(7·39	8·89	7·94	9·67	7·72	8·72	7·00	51·21	48·35	49·89	(53·63)	53·23	48·45	61·00	Mar. 2–6
„ 7–11	8·78	7·39	6·72	5·44	5·44	4·22	5·50	3·72	8·28	7·11	6·17	4·78	7·56	5·94	57·41	48·86	47·38	(48·98)	58·15	47·38	62·09	„ 7–11
„ 12–16	6·17	4·50	2·89	1·83	1·83	0·72	2·17	0·94	6·50	4·78	3·00	1·61	5·22	3·67	57·77	49·49	47·96	(52·08)	52·82	45·10	56·34	„ 12–16
„ 17–21	9·50	8·28	8·83	7·33	8·00	6·72	9·06	7·00	7·83	6·33	7·28	5·83	6·89	5·50	63·41	57·70	56·80	57·34	60·95	55·16	65·59	„ 17–21
„ 22–26	10·28	7·94	8·33	6·28	7·50	6·00	6·22	5·22	9·61	8·11	10·06	7·72	10·33	8·17	57·46	55·31	56·29	59·78	52·74	51·06	59·83	„ 22–26
„ 27–31	7·39	5·17	5·11	3·50	5·00	2·83	4·83	2·56	6·72	4·56	5·11	(3·33)	5·89	3·72	71·69	66·35	64·53	65·67	64·07	59·37	67·45	„ 27–31
April 1–5	9·17	7·61	7·50	5·94	5·39	3·83	3·06	1·50	8·17	6·50	5·50	4·06	7·22	5·17	62·07	56·40	55·26	57·21	57·75	50·99	60·87	April 1–5
„ 6–10	10·00	7·89	6·67	4·06	5·28	3·22	5·28	3·17	8·28	7·17	5·33	2·33	5·28	3·17	56·88	57·34	59·22	62·57	54·72	54·29	63·20	„ 6–10
„ 11–15	11·22	10·28	10·06	8·94	8·33	7·39	6·78	5·61	10·56	9·89	9·17	8·11	11·28	9·50	51·04	46·78	47·56	50·96	50·64	44·26	55·61	„ 11–15
„ 16–20	10·28	8·89	8·00	7·11	4·89	(3·56)	4·11	2·56	10·39	9·39	7·94	6·78	10·61	9·28	42·97	38·90	41·54	46·42	42·17	35·60	46·83	„ 16–20
„ 21–25	10·78	9·11	8·22	7·00	5·44	4·17	4·56	3·00	10·61	9·33	8·00	6·67	10·28	8·50	57·14	50·96	51·96	56·45	54·62	47·20	57·95	„ 21–25
„ 26–30	10·78	9·33	9·11	7·56	7·78	6·06	6·22	5·61	11·00	9·83	9·56	7·83	10·78	9·17	57·39	50·53	49·49	52·23	53·58	45·56	56·24	„ 26–30
May 1–5	10·61	8·61	8·94	7·06	7·83	6·22	7·17	5·67	10·00	8·00	8·06	6·33	9·61	7·06	63·05	56·04	54·42	56·70	59·50	52·11	62·93	May 1–5
„ 6–10	13·94	10·67	11·72	9·50	11·39	8·78	8·89	6·89	11·06	8·56	10·28	7·89	9·83	7·28	67·52	64·50	64·25	67·10	61·88	59·19	67·35	„ 6–10
„ 11–15	11·94	9·44	9·67	7·67	8·72	6·50	6·94	4·67	9·83	7·83	8·11	5·78	8·00	(5·56)	61·17	56·65	56·53	59·45	54·82	51·35	59·95	„ 11–15
„ 16–20	11·78	9·44	10·33	8·44	8·78	6·39	7·06	4·83	11·56	9·33	8·83	7·00	11·06	8·56	66·91	59·93	57·82	59·17	60·97	53·96	(63·81)	„ 16–20
„ 21–25	13·22	10·78	13·61	10·89	14·89	11·33	11·78	9·72	12·83	11·22	14·67	11·56	14·89	11·72	58·56	54·95	56·07	60·03	55·89	52·26	61·66	„ 21–25
„ 26–30	15·00	13·17	12·72	10·28	14·22	11·28	12·11	9·94	14·33	11·50	13·56	10·83	13·00	10·61	67·35	62·78	61·68	64·45	59·83	56·53	64·37	„ 26–30
„ 31–4	14·72	12·28	11·61	9·72	11·72	8·56	8·89	6·83	12·50	9·72	10·56	7·78	9·78	7·39	68·16	63·08	62·02	64·63	60·66	56·60	64·50	„ 31–4
June 5–9	14·11	12·06	12·56	10·61	13·11	9·78	10·11	7·67	12·89	10·50	11·28	8·39	10·67	8·00	67·15	60·95	59·60	62·52	58·63	53·78	61·17	June 5–9
„ 10–14	15·11	13·28	14·17	12·06	13·22	10·94	9·39	8·67	13·78	12·61	14·39	11·61	14·06	12·61	53·78	52·99	55·74	60·80	53·48	51·01	60·49	„ 10–14
„ 15–19	14·22	12·72	14·67	12·89	14·00	12·11	12·83	11·61	14·50	12·89	14·83	13·06	16·06	14·39	53·55	47·10	47·08	50·28	48·93	42·68	52·46	„ 15–19
„ 20–24	13·44	11·11	11·72	9·50	11·00	8·39	9·00	6·89	13·72	12·11	10·17	8·33	12·78	11·89	62·54	57·49	57·59	60·80	55·36	51·80	59·58	„ 20–24
„ 25–29	13·83	12·28	13·67	11·22	12·83	10·50	10·94	9·17	14·28	12·33	12·94	10·56	13·67	10·94	58·88	53·20	54·06	57·75	57·04	50·45	61·05	„ 25–29

NOTE.—The heights in the headings of the temperature columns are those of the thermometer bulbs above the ground. Those in the headings of the pressure columns are those of the barometer cisterns above mean sea-level.

In the above columns the readings which are in brackets are four-day means only, from various causes.

TABLE II.—PART 2.

FIVE-DAY MEANS of the DRY and WET-BULB THERMOMETERS and BAROMETER, from the continuous Records at the Seven BRITISH OBSERVATORIES, July to December 1871.

Five-Day Periods.	THERMOMETER. Valencia. 3·40 m. Dry.	Valencia. 3·40 m. Wet.	Armagh. 1·22 m. Dry.	Armagh. 1·22 m. Wet.	Glasgow. 2·13 m. Dry.	Glasgow. 2·13 m. Wet.	Aberdeen. 12·50 m. Dry.	Aberdeen. 12·50 m. Wet.	Falmouth. 3·35 m. Dry.	Falmouth. 3·35 m. Wet.	Stonyhurst. 2·13 m. Dry.	Stonyhurst. 2·13 m. Wet.	Kew. 3·05 m. Dry.	Kew. 3·05 m. Wet.	BAROMETER. Valencia. 7·01 m.	Armagh. 63·09 m.	Glasgow. 56·08 m.	Aberdeen. 26·82 m.	Falmouth. 64·31 m.	Stonyhurst. 110·03 m.	Kew. 10·36 m.	Five-Day Periods.
	° c.	° c.	° c.	° c.	° c.	° c.	° c.	° c.	° c.	° c.	° c.	° c.	° c.	° c.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	
June 30–4	14·06	12·61	13·83	12·17	14·28	11·89	13·83	11·61	14·50	12·78	13·56	11·56	15·00	12·83	752·43	747·18	748·10	751·24	750·35	744·76	755·79	June 30–4
July 5–9	14·56	13·17	14·11	12·61	14·17	12·39	14·17	12·06	14·94	13·22	14·28	12·61	16·50	13·44	58·10	51·57	(50·59)	53·13	57·54	49·57	62·14	July 5–9
„ 10–14	15·33	13·89	14·83	13·28	15·00	12·83	14·89	12·89	15·00	14·06	15·39	13·56	16·17	14·28	56·17	50·69	50·79	53·40	54·47	47·71	58·51	„ 10–14
„ 15–19	15·61	14·11	15·11	13·33	14·22	12·22	15·44	12·22	17·06	15·39	15·33	13·22	19·61	16·56	61·78	55·18	54·11	55·00	57·82	51·32	61·48	„ 15–19
„ 20–24	14·50	12·89	13·78	12·39	13·89	12·06	13·39	11·72	15·17	13·17	14·00	12·44	16·22	13·56	55·33	46·62	45·42	47·51	51·72	42·76	54·45	„ 20–24
„ 25–29	13·78	11·83	13·06	11·50	12·67	10·83	12·94	11·61	14·56	12·72	12·83	11·11	15·39	12·67	52·43	45·73	45·25	47·64	49·54	41·87	53·38	„ 25–29
Aug. 30–3	14·78	13·50	14·94	13·33	14·33	12·61	15·06	12·72	15·28	13·44	14·50	12·56	16·00	13·11	57·80	51·45	50·76	52·59	54·80	48·27	58·88	Aug. 30–3
„ 4–8	16·17	15·00	16·72	14·89	15·72	13·89	16·33	13·83	16·94	15·11	16·83	14·72	17·44	14·78	64·58	58·66	58·02	59·39	60·49	54·87	64·78	„ 4–8
„ 9–13	16·78	15·11	17·22	15·33	17·11	14·89	17·61	15·17	20·00	17·28	19·56	16·78	21·11	17·44	63·79	59·14	59·09	61·35	58·28	54·72	63·23	„ 9–13
„ 14–18	15·56	13·94	13·44	11·89	14·44	12·39	14·22	12·94	17·94	16·50	16·39	14·33	18·67	15·72	57·31	53·33	52·21	55·16	51·21	47·38	56·45	„ 14–18
„ 19–23	15·44	13·94	13·78	(12·06)	12·67	10·89	13·00	10·61	17·00	15·44	14·39	12·44	17·39	15·17	58·73	[b]54·01	52·46	54·24	56·88	50·20	61·71	„ 19–23
„ 24–28	(15·44)	(13·06)	13·33	(11·89)	13·22	11·44	13·50	10·89	15·61	13·56	14·22	12·22	15·44	12·67	64·91	58·10	56·09	(58·86)	61·88	54·55	66·03	„ 24–28
Sept. 29–2	15·39	14·00	15·94	13·78	15·61	13·39	14·39	12·78	16·83	15·61	16·33	14·39	18·61	15·94	59·88	54·87	55·48	58·36	56·99	52·41	62·09	Sept. 29–2
„ 3–7	14·39	12·50	13·89	12·06	14·00	(12·22)	14·33	12·17	14·83	13·11	13·56	12·06	15·72	13·78	57·97	[c]53·94	52·36	54·55	55·64	49·69	60·34	„ 3–7
„ 8–12	14·61	12·78	13·00	12·00	14·06	12·39	13·22	12·39	15·17	13·50	14·33	12·50	16·83	14·67	59·90	56·83	58·48	62·95	53·15	52·31	59·83	„ 8–12
„ 13–17	15·17	12·89	12·22	10·94	11·94	10·39	11·22	9·50	15·67	13·72	12·22	10·22	15·33	12·33	67·10	64·93	65·98	69·30	60·36	60·46	66·99	„ 13–17
„ 18–22	11·94	9·61	9·78	8·17	9·39	7·78	8·72	7·56	13·00	10·39	9·39	7·56	11·11	8·50	59·27	53·70	51·98	54·29	53·23	48·12	58·15	„ 18–22
„ 23–27	10·44	8·39	7·94	6·72	8·11	6·44	7·89	6·17	12·06	10·61	8·56	7·06	10·89	9·67	48·72	46·52	48·25	52·11	41·54	40·40	47·81	„ 23–27
Oct. 28–2	11·17	9·06	7·83	6·89	7·44	5·94	7·78	6·06	12·00	10·61	8·22	6·94	10·78	9·44	49·99	43·67	44·34	48·47	44·59	38·65	48·15	Oct. 28–2
„ 3–7	10·61	8·83	8·00	6·83	7·56	6·11	8·11	6·11	11·56	10·00	8·50	7·28	10·50	9·00	54·70	47·86	46·32	47·79	50·79	43·44	54·75	„ 3–7
„ 8–12	12·72	11·33	8·67	7·50	5·33	(4·39)	6·83	5·56	12·39	10·22	6·56	5·06	6·56	5·33	64·12	62·83	63·89	66·15	61·91	59·34	69·07	„ 8–12
„ 13–17	13·72	12·72	12·33	11·28	11·39	10·33	10·94	9·94	13·83	12·72	11·11	10·06	9·94	9·06	57·21	53·28	54·29	56·88	56·91	52·06	63·94	„ 13–17
„ 18–22	12·17	10·33	10·11	8·67	10·56	9·17	10·06	9·11	12·17	10·67	10·56	9·33	11·39	10·50	56·70	51·21	51·47	53·86	55·41	49·13	60·87	„ 18–22
„ 23–27	11·61	10·22	10·06	9·00	9·78	8·72	9·72	8·50	12·11	10·78	9·83	8·72	7·94	7·33	63·96	57·46	56·50	57·97	61·30	54·97	66·56	„ 23–27
Nov. 28–1	10·83	9·11	9·11	7·83	8·33	7·11	9·17	7·44	11·39	9·94	8·72	7·28	9·61	8·17	48·47	50·08	53·60	58·53	46·16	47·40	55·72	Nov. 28–1
„ 2–6	9·33	7·50	6·78	5·44	5·61	4·44	6·06	4·89	9·33	[a]8·50	5·72	4·17	5·89	4·22	59·42	58·15	60·24	63·94	53·55	53·94	61·37	„ 2–6
„ 7–11	6·72	4·61	2·94	2·17	3·67	(2·11)	3·33	2·00	6·83	5·33	3·11	2·11	3·39	2·44	57·04	49·62	47·00	46·69	50·40	42·86	53·48	„ 7–11
„ 12–16	10·06	8·67	5·61	4·78	4·11	(3·67)	3·44	2·28	8·61	6·67	4·06	2·78	3·28	2·28	62·78	57·09	55·92	56·94	59·04	51·96	62·78	„ 12–16
„ 17–21	10·17	8·83	6·89	5·72	2·89	2·11	4·17	2·78	7·39	5·56	1·44	(0·56)	− 0·06	− 1·00	59·98	56·40	58·46	61·22	60·44	56·53	68·01	„ 17–21
„ 22–26	7·11	5·67	4·17	3·44	3·56	2·83	2·28	1·72	6·56	5·22	3·22	2·61	2·89	2·33	62·49	58·15	58·63	61·53	55·41	53·15	62·07	„ 22–26
Dec. 27–1	4·11	2·22	2·22	1·22	2·89	1·44	3·44	2·17	3·89	1·89	2·50	(1·39)	2·56	1·44	66·03	62·49	62·57	64·98	56·73	54·77	60·75	Dec. 27–1
„ 2–6	3·06	1·56	0·44	0·00	0·50	−0·83	1·00	0·22	2·56	1·00	0·61	−0·61	0·28	(−0·67)	69·43	63·89	62·85	64·30	62·52	56·85	65·54	„ 2–6
„ 7–11	6·17	4·67	2·67	2·17	3·17	2·50	3·00	2·06	3·56	1·94	1·61	0·94	−0·39	−0·94	71·87	65·74	64·12	65·26	67·30	61·25	71·51	„ 7–11
„ 12–16	9·61	7·94	6·56	5·94	5·50	4·78	4·28	3·17	7·17	5·89	5·83	5·39	4·94	4·50	70·04	63·36	62·14	63·59	67·96	60·00	71·58	„ 12–16
„ 17–21	9·11	7·56	6·17	5·33	5·39	4·28	4·50	3·11	8·56	7·22	5·83	4·94	6·28	5·44	55·28	48·25	47·28	47·96	54·72	46·08	59·50	„ 17–21
„ 22–26	8·33	6·83	5·72	5·00	4·56	3·67	3·39	2·50	7·94	6·72	5·22	4·50	5·67	5·06	54·45	48·70	48·86	50·66	53·65	47·20	60·00	„ 22–26
„ 27–31	8·17	6·44	5·39	4·50	5·56	4·61	5·17	4·17	8·00	6·44	5·33	4·28	5·83	4·78	49·72	42·81	42·10	43·52	50·43	42·02	56·37	„ 27–31

NOTE.—The heights in the headings of the temperature columns are those of the thermometer bulbs above the ground. Those in the headings of the pressure columns are those of the barometer cisterns above mean sea level.

[a] Mean of three days only, the instrument being out of action during several hours on the 3rd and 4th.

[b] Mean of three days only, the clock being out of order on the 20th and 22nd.

[c] Mean of three days only, the clock removed for repairs during the 3rd and 4th.

In the above columns the readings which are in brackets are means for four days only from various causes.

JANUARY.—1871.

Plate 1

1ST 2ND 3RD 4TH 5TH

VALENCIA.

Lat. 51° 54' 36" N.
Long. 10 18 10 W.

Bar. 23.0 Ft. above M.S.L.

ARMAGH.

Lat. 54° 21' 13" N.
Long. 6 38 52 W.

Bar. 207.3 Ft. above M.S.L.

GLASGOW.

Lat. 55° 52' 43" N.
Long. 4 17 30 W.

Bar. 184.0 Ft. above M.S.L.

ABERDEEN.

Lat. 57° 9' 51" N.
Long. 2. 5. 596 W.

Bar. 88.5 Ft. above M.S.L.

FALMOUTH.

Lat. 50° 9' 24" N.
Long. 5. 3. 30 W.

Bar. 210.8 Ft. above M.S.L.

STONYHURST.

Lat. 53° 50' 40" N.
Long. 2 28 10.2 W.

Bar. 360.7 Ft. above M.S.L.

No Record.

Trace Indistinct.

KEW.

Lat. 51° 28' 6" N.
Long. 0 18 47 W.

Bar. 34.0 Ft. above M.S.L.

* No Trace or Out of Action.

JANUARY_1871.

Plate 11

6TH 7TH 8TH 9TH 10TH

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

R.0.001 R.0.130 R.0.208 R.0.410 R.0.430

Bar. 23.0 Ft. Above M.S.L.

Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH.

R.0.215 R.0.267 R.0.460 R.0.008 R.0.412

Bar. 207.3 Ft. Above M.S.L.

Lat. 54°21'13"N. Long. 6.38.52 W.

GLASGOW.

R.0.150 R.0.670 R.0.490 R.0.170 R.—

Gas Out

Bar. 184.0 Ft. Above M.S.L.

Lat. 55°52'43"N. Long. 4.17.30 W.

FIG. 1

Jan.y 9th 8 a.m.

ABERDEEN.

RAINFALL NOT REGISTERED

No Trace

Bar. 88.5 Ft. Above M.S.L.

Lat. 57°9'51"3 N. Long. 2.5.596 W.

FALMOUTH.

RAINFALL NOT REGISTERED

Bar. 210.8 Ft. Above M.S.L.

Lat. 50°9'24"N. Long. 5.3.30 W.

FIG. 2

Jan.y 10th 6 p.m

STONYHURST.

Calm. Calm.

R.0.091 R.0.025 R.0.325 R.0.118 R.0.233

Bar. 360.7 Ft. Above M.S.L.

Lat. 53°50'40"N. Long. 2.28.10 W.

KEW.

R.0.025 R.0.085 R.— R.— R.0.106

Trace Indistinct

Bar. 34.0 Ft. Above M.S.L.

Lat. 51°28.6"N. Long. 0.18.47 W.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VAPOUR TENSION. INCH. RAINFALL IN INCHES MEASURED AT 10 A.M. WIND DIRECTION. DRY. WET. BAR. VAP. TEN. DIREC.

* No Trace or Out of Action.

JANUARY.—1871.

Plate III

11TH 12TH 13TH 14TH 15TH

VALENCIA.

Bar 23.0 Ft. above M.S.L.
Lat. 51° 54' 36" N.
Long. 10 18 10 W.

ARMAGH.

Bar 207.3 Ft. above M.S.L.
Lat. 54° 21' 13" N.
Long. 6 38 53 W.

GLASGOW.

Bar 184.0 Ft. above M.S.L.
Lat. 55° 52' 48" N.
Long. 4 17 30 W.

ABERDEEN.

Bar 88.5 Ft. above M.S.L.
Lat. 57° 9' 51" N.
Long. 2 5 36 W.

FALMOUTH.

Bar 210.8 Ft. above M.S.L.
Lat. 50° 9' 24" N.
Long. 5 3 30 W.

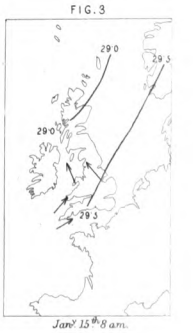
STONYHURST.

Bar 360.7 Ft. above M.S.L.
Lat. 53° 50' 40" N.
Long. 2 28 10 2 W.

KEW.

Bar 34.0 Ft. above M.S.L.
Lat. 51° 28' 6" N.
Long. 0 18 47 W.

FIG. 3



Jan. 15th 8 a.m.

* No Trace or Out of Action.

JANUARY, 1871.

Plate IV

16TH 17TH 18TH 19TH 20TH

VALENCIA.

WIND | BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. | THER. BAR. | WIND

MLS. | VAPOUR TENSION. | INCH | INS. | F. | RAINFALL IN INCHES MEASURED AT 10 A.M. | WIND DIRECTION W. S. E. N.

30·73 DRY WET R.0·501 R.0·360 R.0·160 R.0·050 R.0·002 BAR. VAP. TEN. DIREC. Gas Out

Lat. 51°54'36"N. Long. 10.18.10 W. | Bar. 23.0 Ft. above M.S.L.

ARMAGH.

30·73 29·96 DRY WET R.0·014 R.— R.0·092 R.0·074 R.0·036 BAR. VAP. TEN. DIREC. Calm

Lat. 54°21'13"N. Long. 6.38.52 W. | Bar. 207.3 Ft. above M.S.L.

GLASGOW.

30·73 27·96 DRY WET R.0·140 R.0·360 R.0·050 R.— R.0·090 BAR. VAP. TEN. DIREC.

Lat. 55°52'43"N. Long. 4.17.30 W. | Bar. 184.0 Ft. above M.S.L.

FIG. 4

Jan.y 16th 8 a.m.

ABERDEEN.

30·73 29·72 DRY WET BAR. VAP. TEN. DIREC.

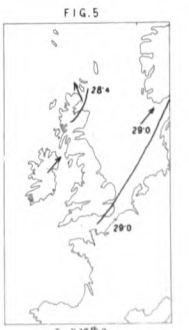
Lat. 57°9'51"N. Long. 2°.5.596 W. | Bar. 88.5 Ft. above M.S.L.

FALMOUTH.

30·73 29·82 DRY WET BAR. VAP. TEN. DIREC.

Lat. 50°9'24"N. Long. 5.3.30 W. | Bar. 210.8 Ft. above M.S.L.

FIG. 5



Jan.y 17th 8 a.m.

STONYHURST.

30·73 DRY WET R.0·119 R.0·032 R.0·050 R.0·003 R.0·025 BAR. VAP. TEN. DIREC. Calm

Lat. 53°50'40"N. Long. 2.28.10 W. | Bar. 360.7 Ft. above M.S.L.

KEW.

30·73 30·30 DRY WET R.0·180 R.0·464* R.0·280 R.0·066 R.0·018 BAR. VAP. TEN. DIREC. Clock Stopped Calm Thaw Indicated

Lat. 51°28.6'N Long. 0.18.47 W. | Bar. 34.0 Ft. above M.S.L.

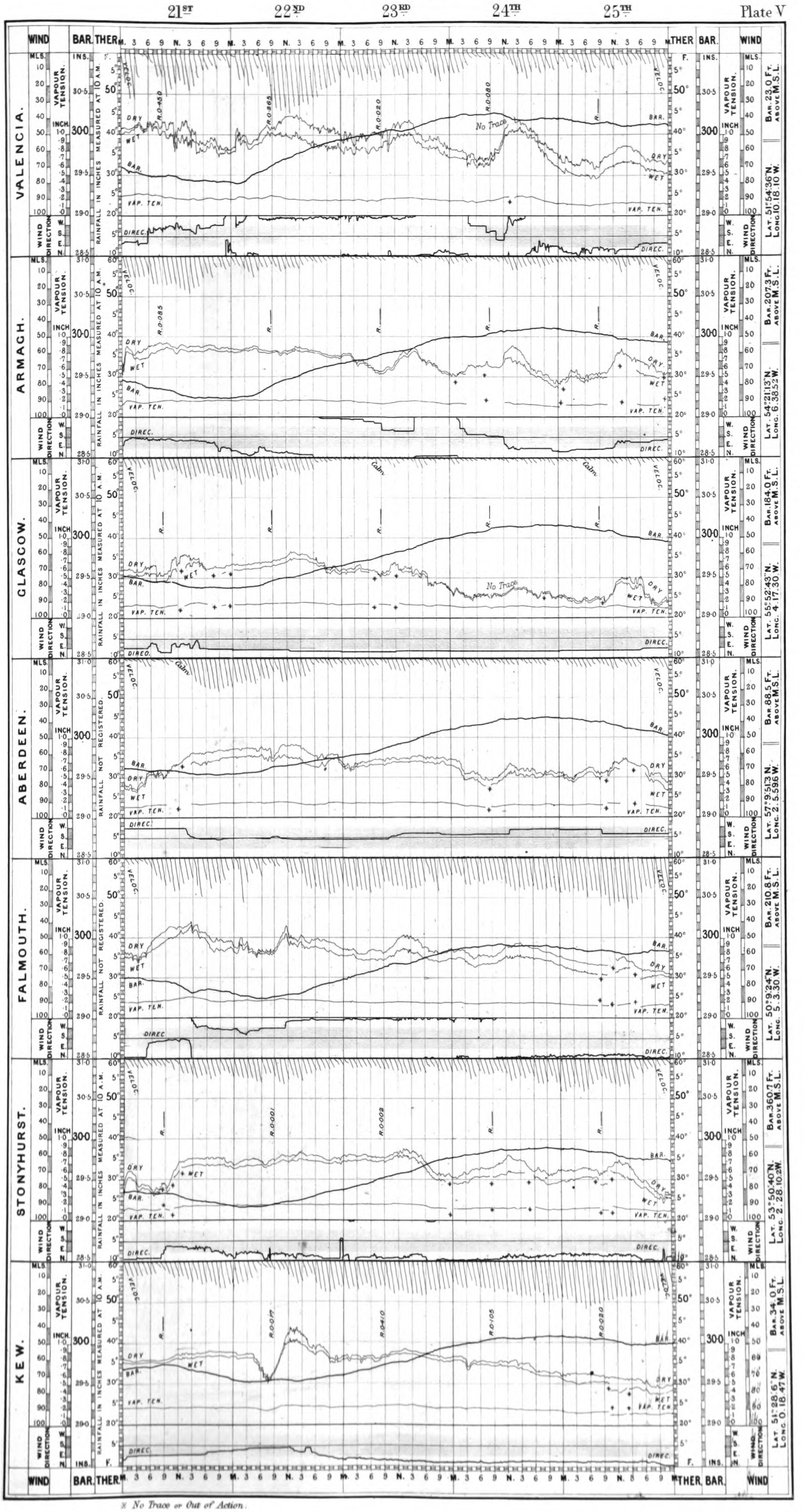
WIND | BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. | THER. BAR. | WIND

* No Trace or Out of Action.

JANUARY.—1871.

21ST 22ND 23RD 24TH 25TH

Plate V

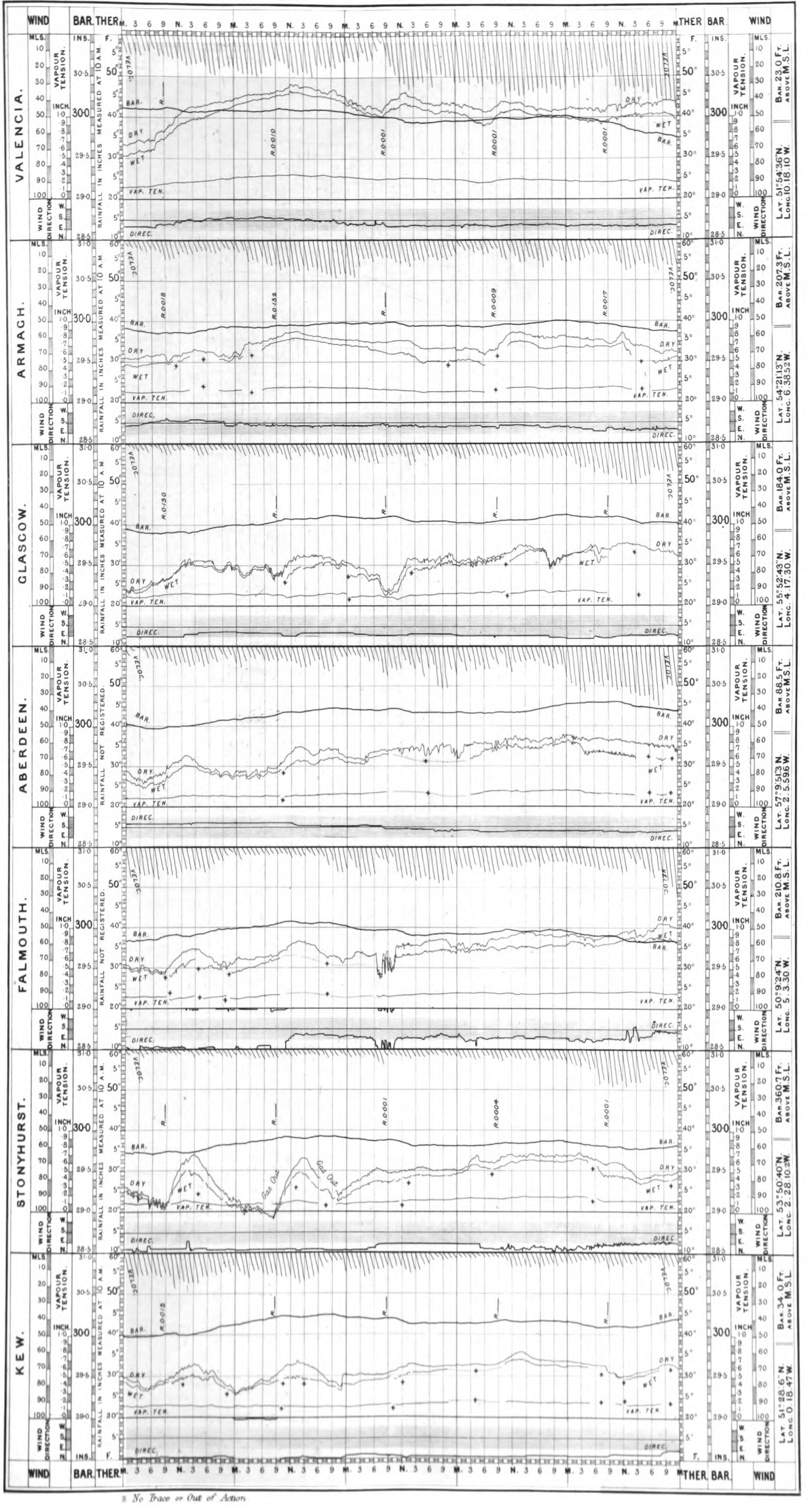


* No Trace or Out of Action.

JANUARY.—1871.

Plate VI

26TH 27TH 28TH 29TH 30TH



* No Trace or Out of Action

JANUARY_FEBRUARY_1871.

31ST 1ST 2ND 3RD 4TH

Plate VII

VALENCIA.

Lat. 51°54'36"N. Long. 10.18.10 W. Bar. 23.0 Ft. Above M.S.L.

ARMAGH.

Lat. 54°21'13"N. Long. 6.38.52 W. Bar. 207.3 Ft. Above M.S.L.

GLASGOW.

Lat. 55°52'43"N. Long. 4.17.30 W. Bar. 184.0 Ft. Above M.S.L.

ABERDEEN.

Lat. 57°9'54"N. Long. 2.5.9 W. Bar. 88.5 Ft. Above M.S.L.

FALMOUTH.

Lat. 50°9'24"N. Long. 5.3.30 W. Bar. 210.8 Ft. Above M.S.L.

STONYHURST.

Lat. 53°50'40"N. Long. 2.28.10 W. Bar. 360.7 Ft. Above M.S.L.

KEW.

Lat. 51°28.6'N. Long. 0.18.47 W. Bar. 34.0 Ft. Above M.S.L.

FIG. 6

Jany 31st 8 am.

FIG. 7

Feby 1st 8 am.

FIG. 8

Feby 3rd 8 am.

FIG. 9

Feby 4th 8 am.

R No Trace or Out of Action.

FEBRUARY, — 1871.

5TH 6TH 7TH 8TH 9TH

Plate VIII

VALENCIA.

Lat. 51°54'36"N. Long. 10.18.10 W. Bar. 28.0 Ft. Above M.S.L.

ARMAGH.

Lat. 54°21'13"N. Long. 6.38.52 W. Bar. 207.3 Ft. Above M.S.L.

GLASCOW.

Lat. 55°55'48"N. Long. 4.17.30 W. Bar. 184.0 Ft. Above M.S.L.

ABERDEEN.

Lat. 57°9'51"3 N. Long. 2.5.596 W. Bar. 88.5 Ft. Above M.S.L.

FALMOUTH.

Lat. 50°9'24"N. Long. 5.3.30 W. Bar. 210.8 Ft. Above M.S.L.

STONYHURST.

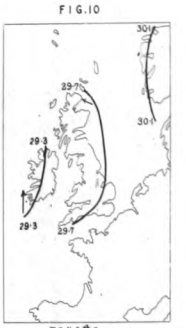
Lat. 53°50'40"N. Long. 2.28.10.2 W. Bar. 360.7 Ft. Above M.S.L.

KEW.

Lat. 51°28.6"N. Long. 0.18.47 W. Bar. 34.0 Ft. Above M.S.L.

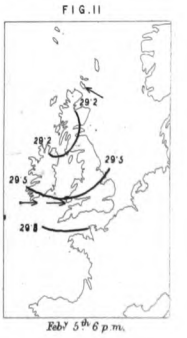
* *No Trace or Out of Action.*

FIG. 10



Febʸ 5th 8 am.

FIG. 11



Febʸ 5th 6 p.m.

FIG. 12

Febʸ 9th 6 p.m.

F E B R U A R Y._1871.

10TH 11TH 12TH 13TH 14TH

Plate IX

VALENCIA.

Lat. 51°54'36"N. Long. 10°18'10"W. Bar. 28.0 Ft. above M.S.L.

ARMAGH.

Lat. 54°21'13"N. Long. 6°38'53"W. Bar. 207.3 Ft. above M.S.L.

GLASCOW.

Lat. 55°52'43"N. Long. 4°17'30"W. Bar. 184.0 Ft. above M.S.L.

ABERDEEN.

Lat. 57°9'51"N. Long. 2°5'36"W. Bar. 88.5 Ft. above M.S.L.

FALMOUTH.

Lat. 50°9'24"N. Long. 5°3'30"W. Bar. 210.8 Ft. above M.S.L.

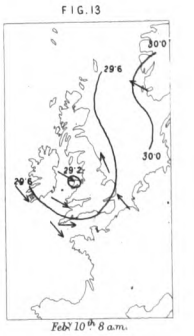
STONYHURST.

Lat. 53°50'40"N. Long. 2°28'10"W. Bar. 360.7 Ft. above M.S.L.

KEW.

Lat. 51°28'6"N. Long. 0°18'47"W. Bar. 34.0 Ft. above M.S.L.

FIG. 13



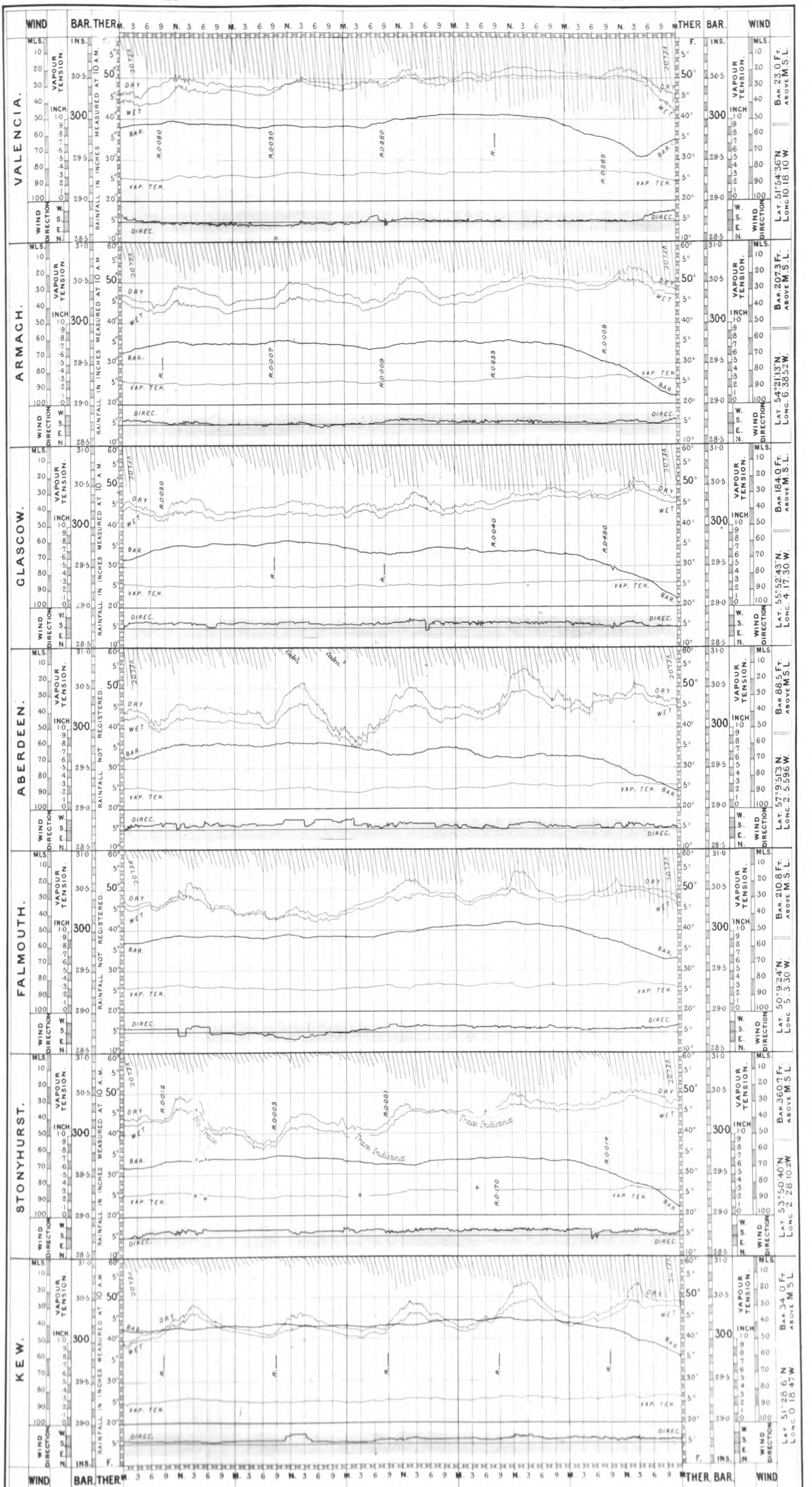
Feby 10th 8 a.m.

* No Trace or Out of Action.

FEBRUARY.—1871.

15TH 16TH 17TH 18TH 19TH

Plate X



* No Trace or Out of Action.

FEBRUARY.—1871.

20TH 21ST 22ND 23RD 24TH

Plate XI

VALENCIA.

Lat. 51°54'36"N. Long. 10.18.10 W. Bar. 23.0 Ft. Above M.S.L.

ARMAGH.

Lat. 54°21'13"N. Long. 6.38.53 W. Bar. 207.3 Ft. Above M.S.L.

GLASCOW.

Lat. 55°52'43"N. Long. 4.17.30 W. Bar. 184.0 Ft. Above M.S.L.

ABERDEEN.

Lat. 57°9'513 N. Long. 2.5.596 W. Bar. 88.5 Ft. Above M.S.L.

FALMOUTH.

Lat. 50°9'24"N. Long. 5.3.30 W. Bar. 210.8 Ft. Above M.S.L.

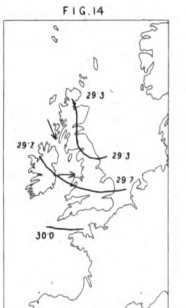
STONYHURST.

Lat. 53°50'40"N. Long. 2.28.10.2W. Bar. 360.7 Ft. Above M.S.L.

KEW.

Lat. 51°28.6'N. Long. 0.18.47 W. Bar. 34.0 Ft. Above M.S.L.

FIG. 14



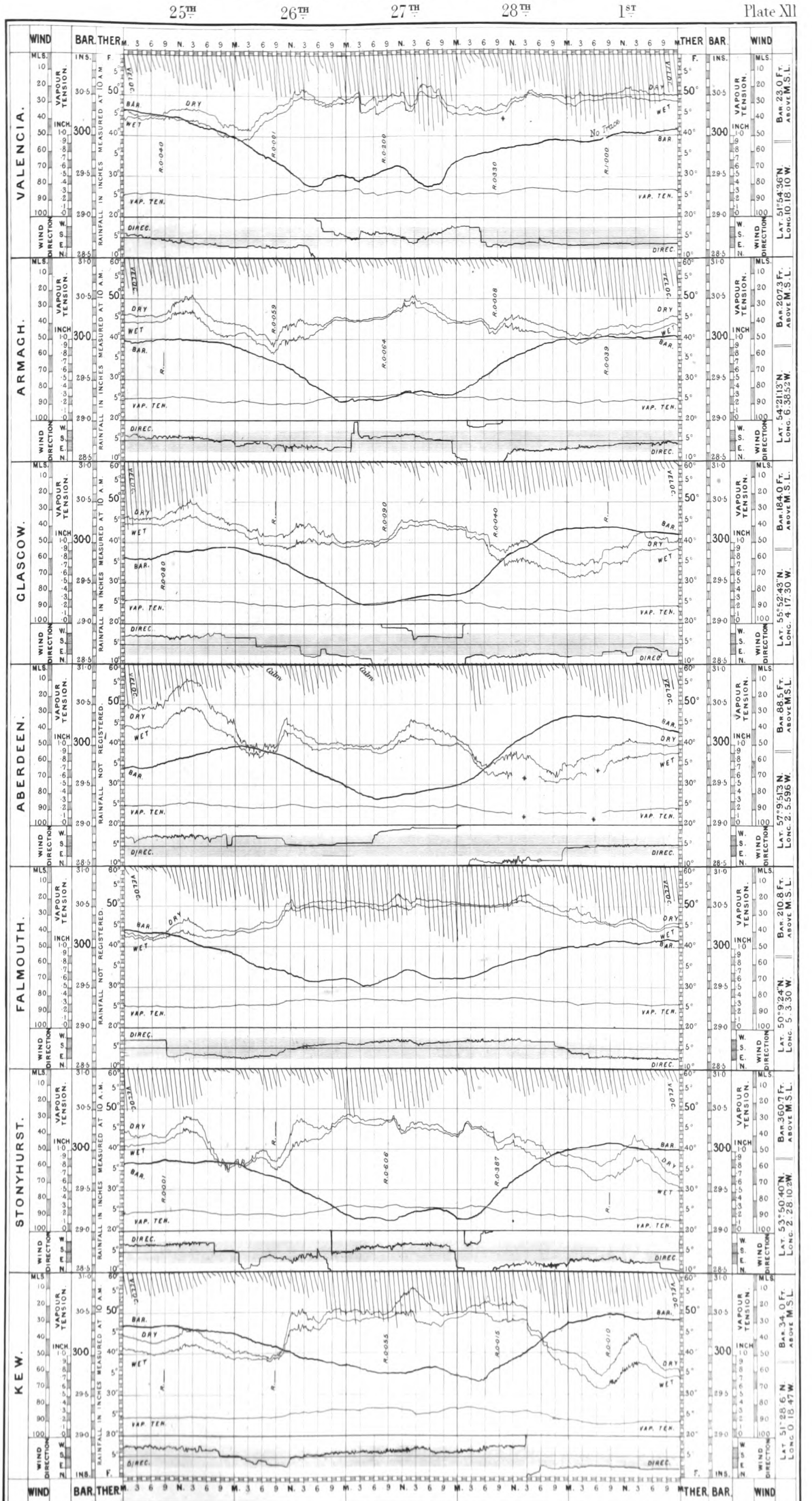
Febr 20th 8 a.m.

* No Trace or Out of Action.

FEBRUARY,— MARCH,— 1871.

25TH 26TH 27TH 28TH 1ST

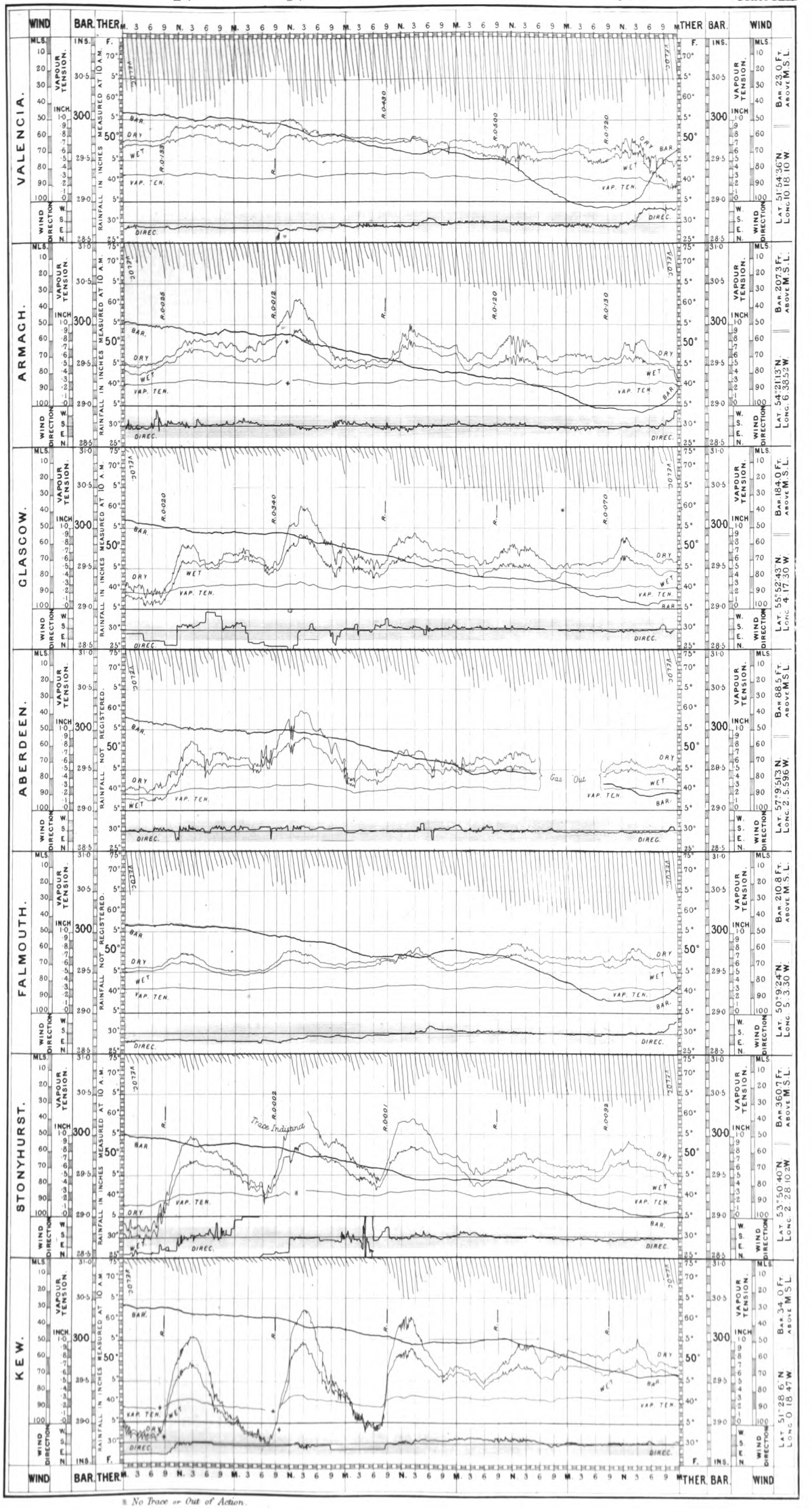
Plate XII



* No Trace or Out of Action.

M A R C H,—1871.

2ND 3RD 4TH 5TH 6TH Plate XIII



* No Trace or Out of Action.

MARCH.—1871.

Plate XIV

7TH 8TH 9TH 10TH 11TH

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

RAINFALL IN INCHES MEASURED AT 10 A.M.

R.0·170* R.0·690 R.0·720 R.0·060 R.0·250

Bar. 23.0 Ft. above M.S.L.

Lat. 51°54'36"N Long. 10.18.10 W.

ARMAGH.

RAINFALL IN INCHES MEASURED AT 10 A.M.

R.0·360 R.0·235 R.0·183 R.0·220 R.—

Bar. 207.3 Ft. above M.S.L.

Lat. 54°21'13"N. Long. 6°38'52"W.

GLASCOW.

RAINFALL IN INCHES MEASURED AT 10 A.M.

R.0·030 R.0·070 R.0·150 R.0·370 R.0·250

Bar. 184.0 Ft. above M.S.L.

Lat. 55°52'43"N. Long. 4°17.30 W.

ABERDEEN.

RAINFALL NOT REGISTERED.

Bar. 86.5 Ft. above M.S.L.

Lat. 57°9'5"3 N. Long. 2.5.396 W.

FALMOUTH.

RAINFALL NOT REGISTERED

Bar. 210.8 Ft. above M.S.L.

Lat. 50°9'24"N. Long. 5.3.30 W.

STONYHURST.

RAINFALL IN INCHES MEASURED AT 10 A.M.

R.0·015 R.0·082 R.0·017 R.0·398 R.0·472

Bar. 360.7 Ft. above M.S.L.

Lat. 53°50'40"N. Long. 2°28'10.2W.

KEW.

RAINFALL IN INCHES MEASURED AT 10 A.M.

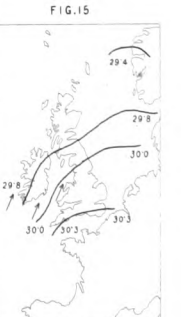
R.0·235 R.0·032 R.0·466 R.0·337 R.0·063

Bar. 34.0 Ft. above M.S.L.

Lat. 51°28.6 N Long. 0.18.47 W

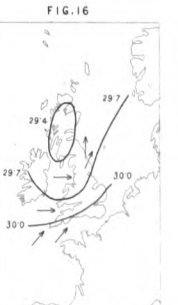
VAPOUR TENSION. INCH. DRY WET BAR. VAP. TEN. WIND DIRECTION. DIREC. W. S. E. N.

FIG. 15



March 9th 8 a.m.

FIG. 16



March 9th 2 p.m.

* No Trace or Out of Action

M A R C H,—1871.

12TH 13TH 14TH 15TH 16TH

Plate XV

VALENCIA.

R. 0·440 R. 0·810 R. 0·150 R. 0·060 R. 0·480

Lat. 51° 54·36' N. Long. 10·18·10 W. Bar. 23·0 Ft. Above M.S.L.

ARMAGH.

R. 0·269 R. 0·021 R. 0·110 R. 0·043 R. 0·159

Lat. 54° 21·13' N. Long. 6·38·5 W. Bar. 207·3 Ft. Above M.S.L.

GLASGOW.

R. 0·420 R. 0·360 R. 0·100 R. 0·100 R. 0·340

Trace Lost

Lat. 55° 52·43' N. Long. 4·17·30 W. Bar. 184·0 Ft. Above M.S.L.

ABERDEEN.

Rainfall not registered

Close Stopped. Close Stopped.

Lat. 57° 9·513 N. Long. 2° 5·596 W. Bar. 88·5 Ft. Above M.S.L.

FALMOUTH.

Rainfall not registered

Out of Action.

Lat. 50° 9·24' N. Long. 5·3·30 W. Bar. 210·8 Ft. Above M.S.L.

STONYHURST.

R. 0·017 R. 0·156 R. 0·122 R. 0·072 R. 0·520

Trace Indicated. Trace Indicated.

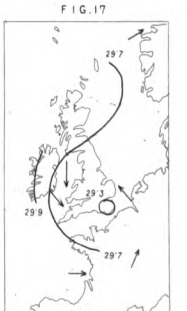
Lat. 53° 50·40' N. Long. 2·28·10 W. Bar. 360·7 Ft. Above M.S.L.

KEW.

R. 0·010 R. 0·018 R. 0·084 R. 0·430

Lat. 51° 28·6' N. Long. 0·18·47 W. Bar. 34·0 Ft. Above M.S.L.

FIG. 17

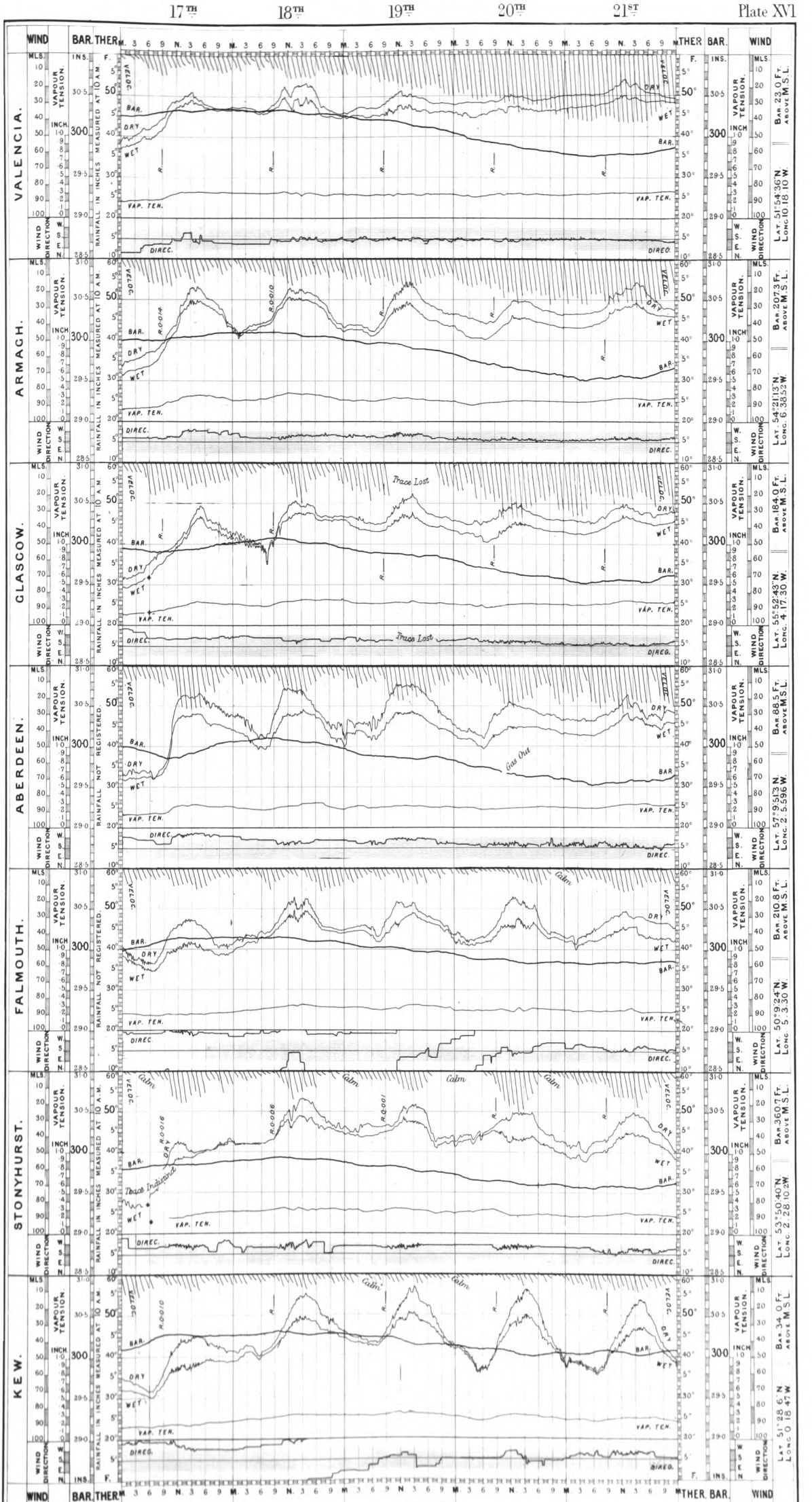


March 16th 8 a.m.

* No Trace or Out of Action.

M A R C H. 1871.

17TH 18TH 19TH 20TH 21ST Plate XVI

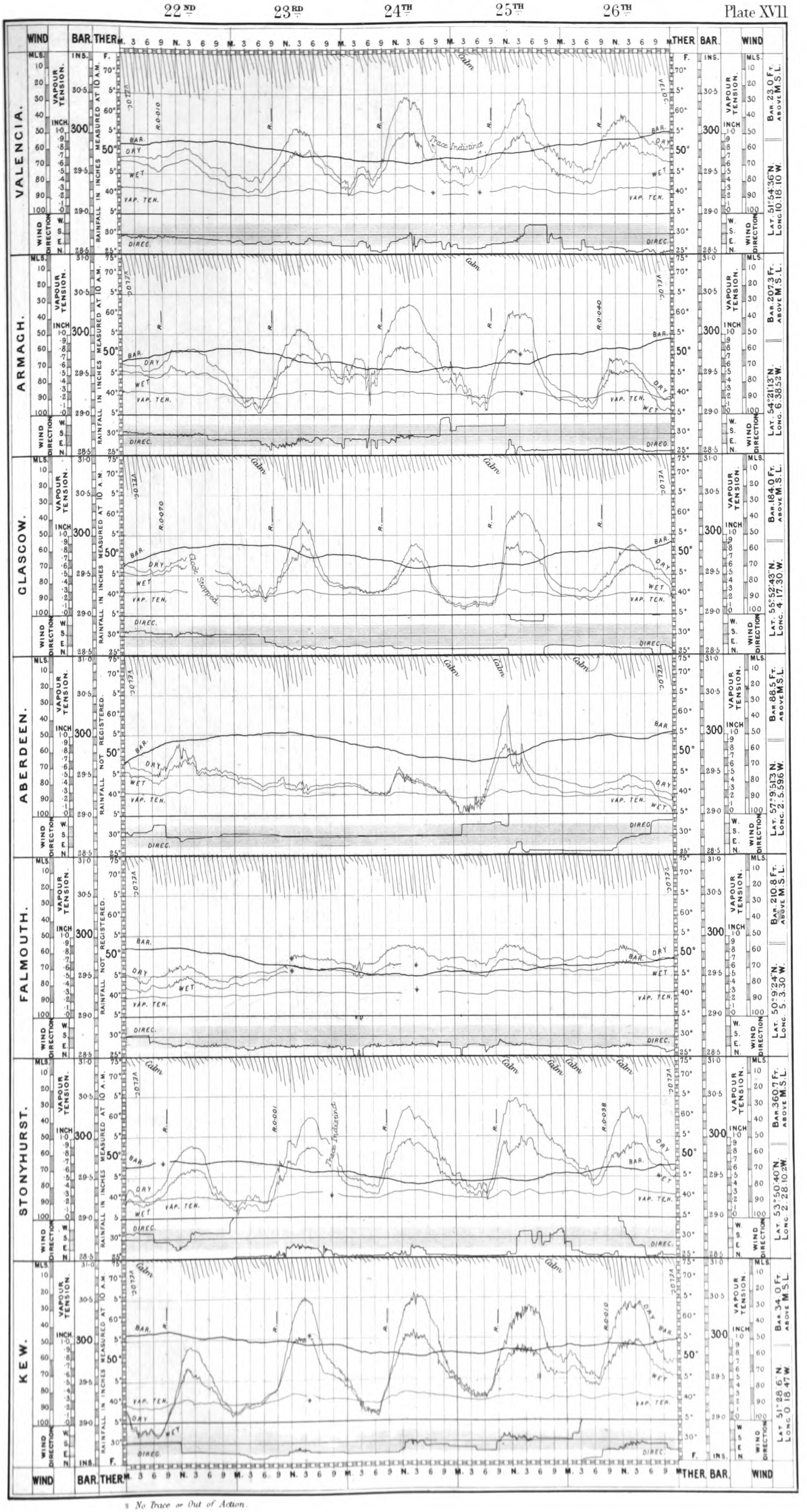


‖ No Trace or Out of Action.

M A R C H.—1871.

Plate XVII

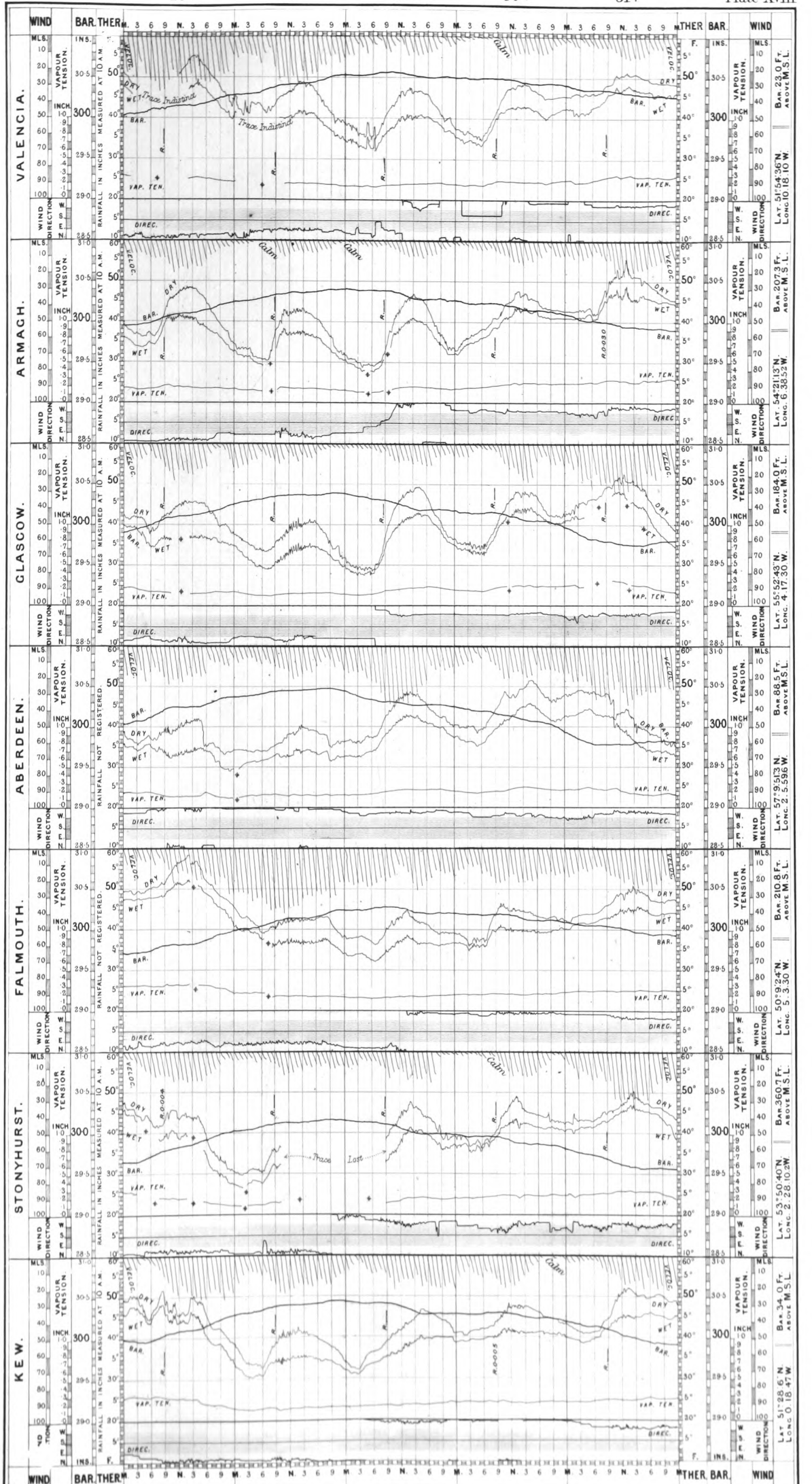
22ND 23RD 24TH 25TH 26TH



* No Trace or Out of Action.

M A R C H, 1871.

27TH 28TH 29TH 30TH 31ST



* No Trace or Out of Action

APRIL, 1871.

Plate XIX.

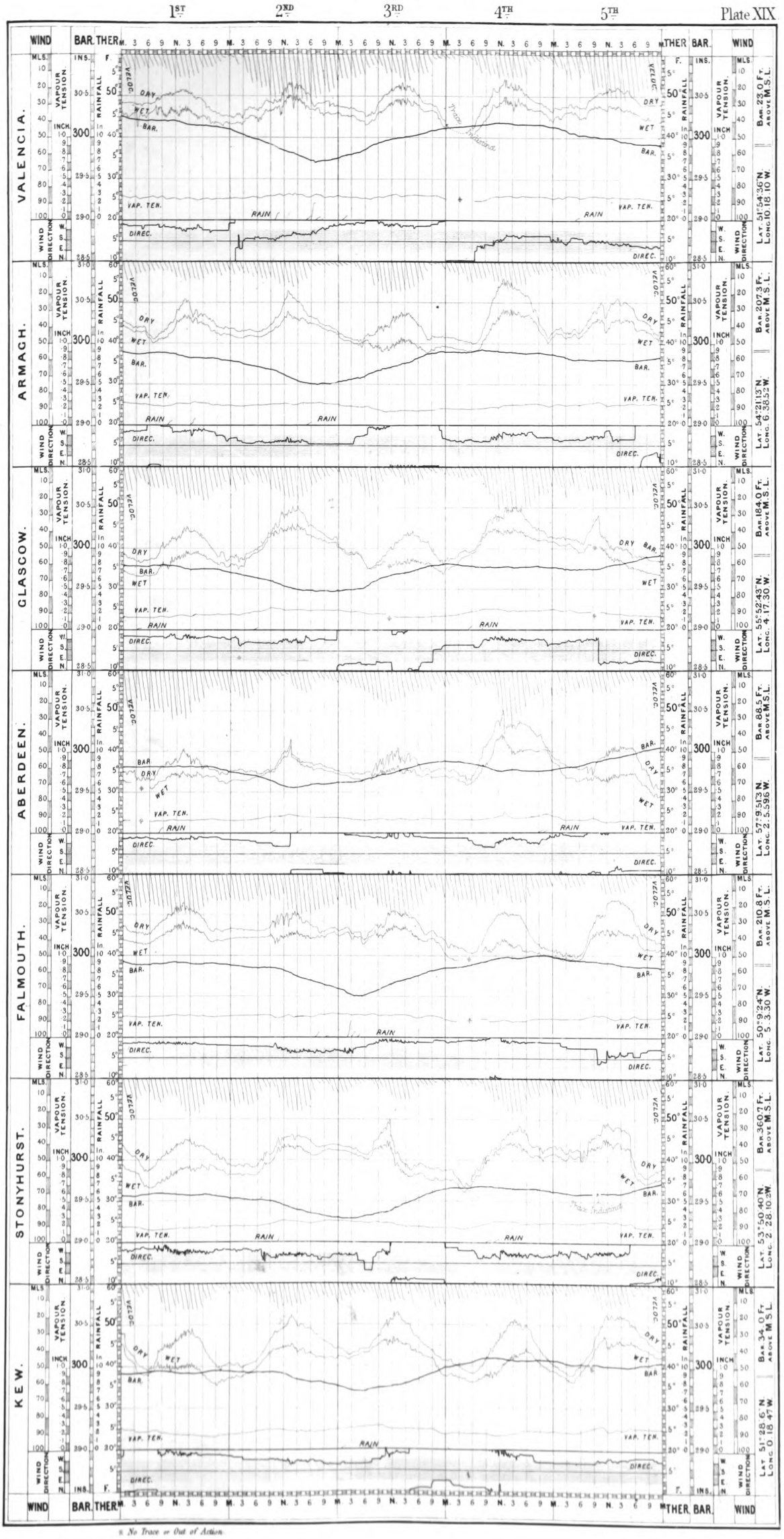
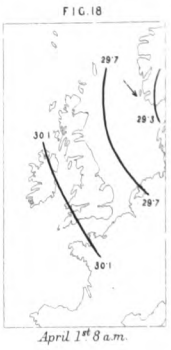
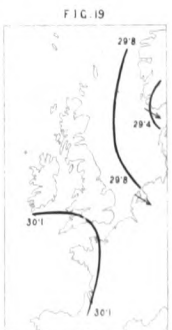


FIG. 18



April 1st 8 a.m.

FIG. 19



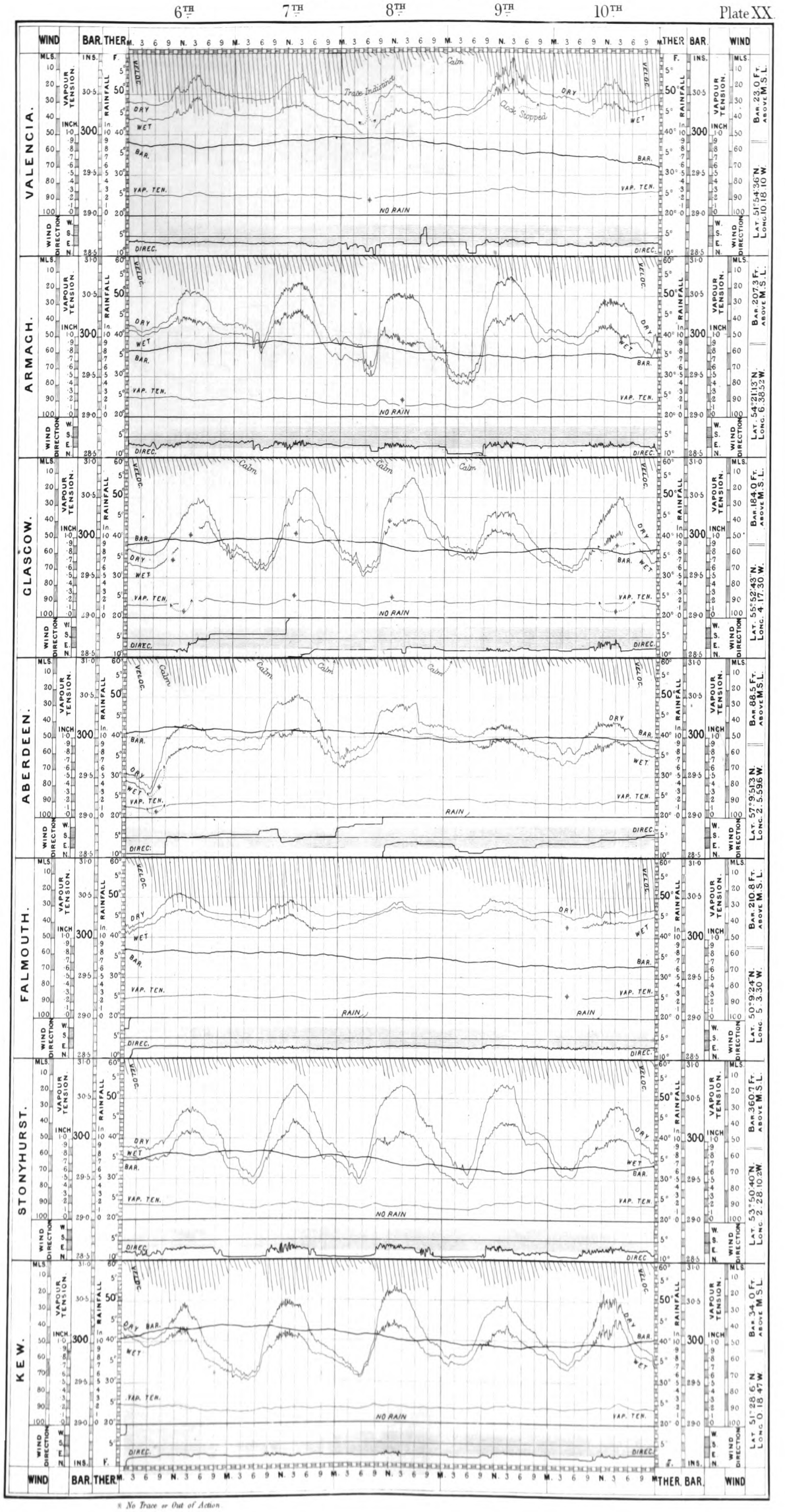
April 5th 8 a.m.

* No Trace or Out of Action.

APRIL, 1871.

6TH 7TH 8TH 9TH 10TH

Plate XX



* No Trace or Out of Action.

APRIL, 1871

Plate XXI

11TH 12TH 13TH 14TH 15TH

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 THER. BAR. WIND

VALENCIA.

MLS. INS. F. VAPOUR TENSION. INCH RAINFALL. WIND DIRECTION W. S. E. N.

DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 23.0 Ft. above M.S.L.

Lat. 51°54'36" N. Long. 10.18.10 W.

ARMAGH.

MLS. INS. F. VAPOUR TENSION. INCH RAINFALL. WIND DIRECTION W. S. E. N.

BAR. DRY WET VAP. TEN. RAIN DIREC.

Bar. 207.3 Ft. above M.S.L.

Lat. 54°21'13" N. Long. 6.38.52 W.

GLASGOW.

MLS. INS. F. VAPOUR TENSION. INCH RAINFALL. WIND DIRECTION W. S. E. N.

Calm. Trace Inds.* BAR. DRY WET VAP. TEN. RAIN DIREC.

Bar. 184.0 Ft. above M.S.L.

Lat. 55°52'43" N. Long. 4.17.30 W.

ABERDEEN.

MLS. INS. F. VAPOUR TENSION. INCH RAINFALL. WIND DIRECTION W. S. E. N.

Calm. Calm. BAR. DRY WET VAP. TEN. RAIN DIREC.

Bar. 88.5 Ft. above M.S.L.

Lat. 57°9'51" N. Long. 2.5.596 W.

FALMOUTH.

MLS. INS. F. VAPOUR TENSION. INCH RAINFALL. WIND DIRECTION W. S. E. N.

DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 210.8 Ft. above M.S.L.

Lat. 50°9'24" N. Long. 5.3.30 W.

STONYHURST.

MLS. INS. F. VAPOUR TENSION. INCH RAINFALL. WIND DIRECTION W. S. E. N.

Calm. BAR. DRY WET VAP. TEN. RAIN DIREC.

Bar. 360.7 Ft. above M.S.L.

Lat. 53°50'40" N. Long. 2.28.10.2 W.

KEW.

MLS. INS. F. VAPOUR TENSION. INCH RAINFALL. WIND DIRECTION W. S. E. N.

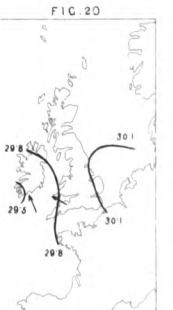
Calm. Calm. BAR. DRY WET VAP. TEN. RAIN DIREC.

Bar. 34.0 Ft. above M.S.L.

Lat. 51°28.6" N. Long. 0.18.47 W.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 THER. BAR. WIND

FIG. 20



April 11th 8 a.m.

* No Trace or Out of Action

APRIL, 1871.

Plate XXII.

16TH 17TH 18TH 19TH 20TH

VALENCIA. Bar. 23.0 Ft. above M.S.L. Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH. Bar. 207.3 Ft. above M.S.L. Lat. 54°21'13"N. Long. 6.38.52 W.

GLASGOW. Bar. 184.0 Ft. above M.S.L. Lat. 55°52'43"N. Long. 4.17.30 W.

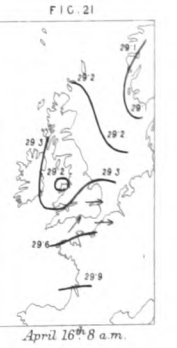
ABERDEEN. Bar. 88.5 Ft. above M.S.L. Lat. 57°9'51"3 N. Long. 2.5.596 W.

FALMOUTH. Bar. 210.8 Ft. above M.S.L. Lat. 50°9'24"N. Long. 5.3.30 W.

STONYHURST. Bar. 360.7 Ft. above M.S.L. Lat. 53°50'40"N. Long. 2.28.10 W.

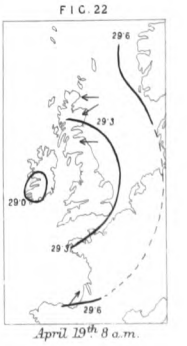
KEW. Bar. 34.0 Ft. above M.S.L. Lat. 51°28.6'N. Long. 0.18.47 W.

FIG. 21



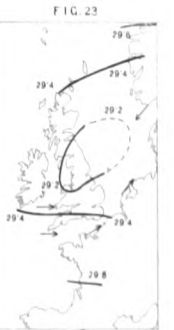
April 16th 8 a.m.

FIG. 22



April 19th 8 a.m.

FIG. 23

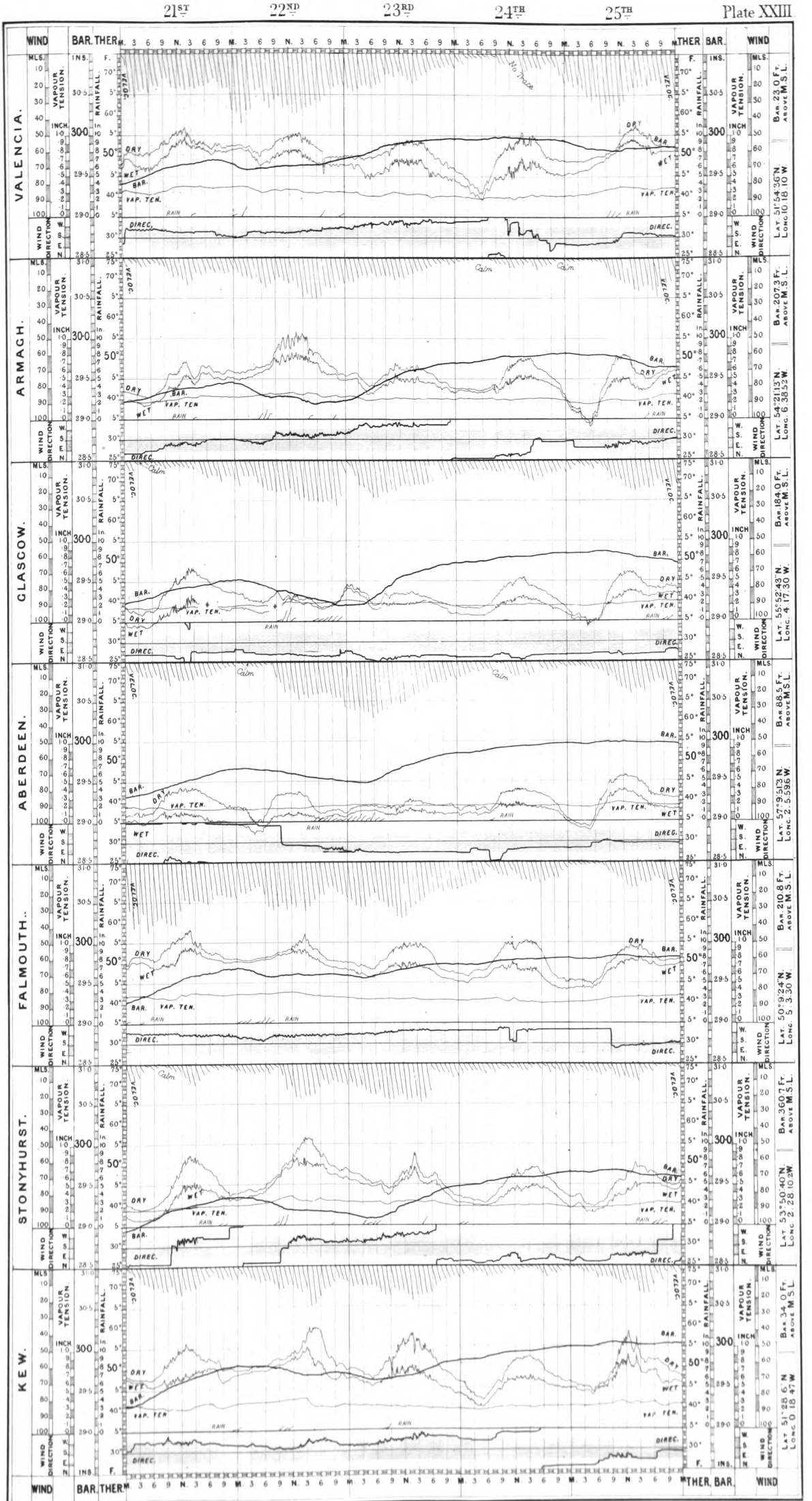


April 20th 8 a.m.

* No Trace or Out of Action

APRIL, 1871.

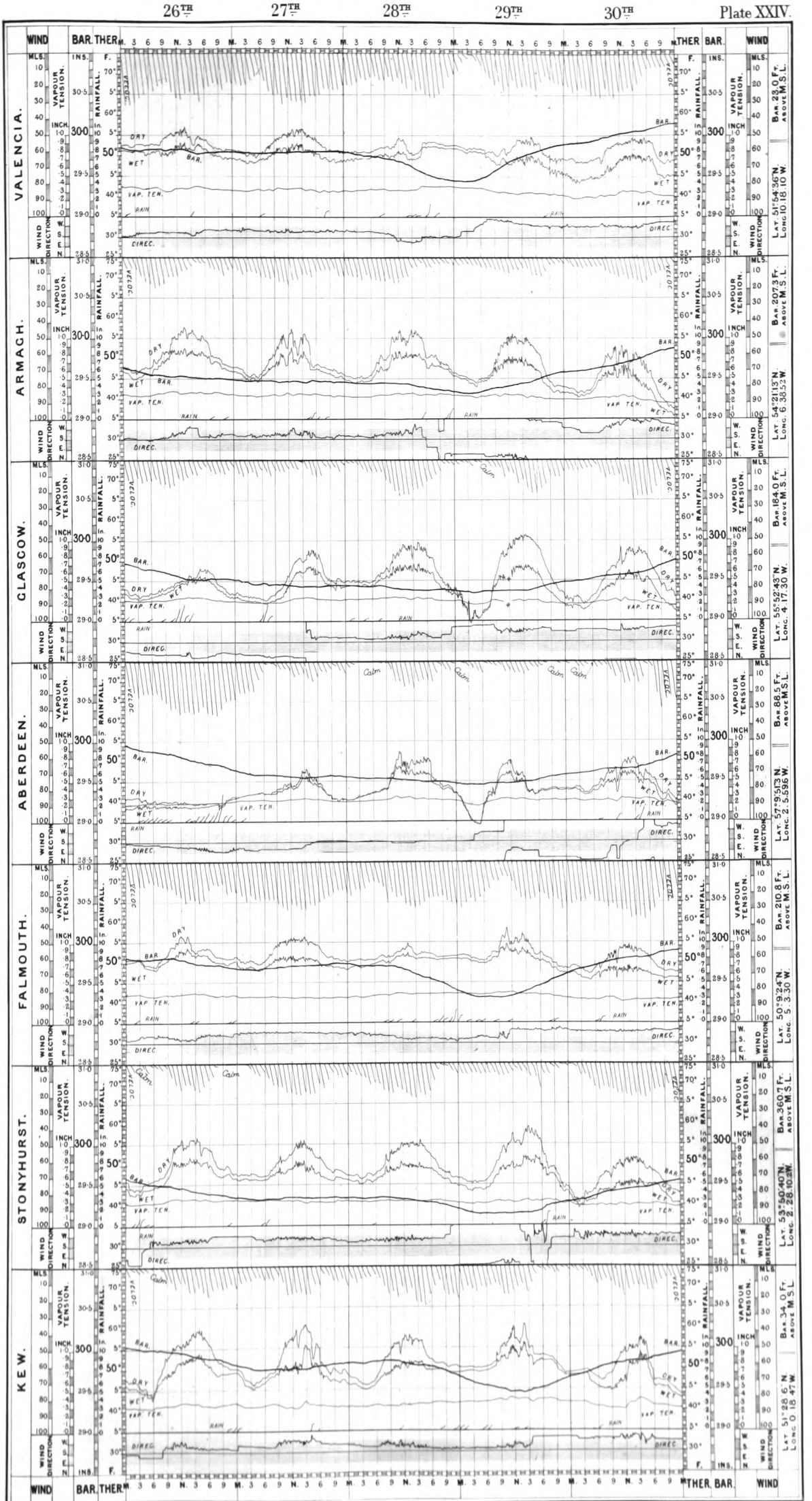
21ST 22ND 23RD 24TH 25TH Plate XXIII.



x No Trace or Out of Action

APRIL, 1871.

26TH 27TH 28TH 29TH 30TH Plate XXIV.



§ *No Trace or Out of Action.*

M A Y, 1871.

1ST 2ND 3RD 4TH 5TH

Plate XXV.

VALENCIA.

Lat. 51°54'36"N. Long. 10.18.10 W. Bar. 23.0 Ft. above M.S.L.

ARMAGH.

Lat. 54°21'13"N. Long. 6.38.33 W. Bar. 207.3 Ft. above M.S.L.

GLASCOW.

Lat. 55°52'43"N. Long. 4.17.30 W. Bar. 184.0 Ft. above M.S.L.

ABERDEEN.

Lat. 57°9'513 N. Long. 2.5.596 W. Bar. 88.5 Ft. above M.S.L.

FALMOUTH.

Lat. 50°9'24"N. Long. 5.3.30 W. Bar. 210.8 Ft. above M.S.L.

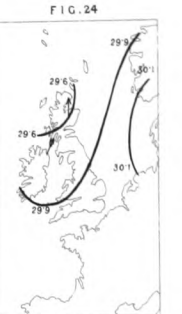
STONYHURST.

Lat. 53°50'40"N. Long. 2.28.10 W. Bar. 360.7 Ft. above M.S.L.

KEW.

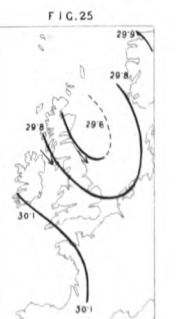
Lat. 51°28.6'N. Long. 0.18.47 W. Bar. 34.0 Ft. above M.S.L.

FIG. 24



May 3rd 8 a.m.

FIG. 25

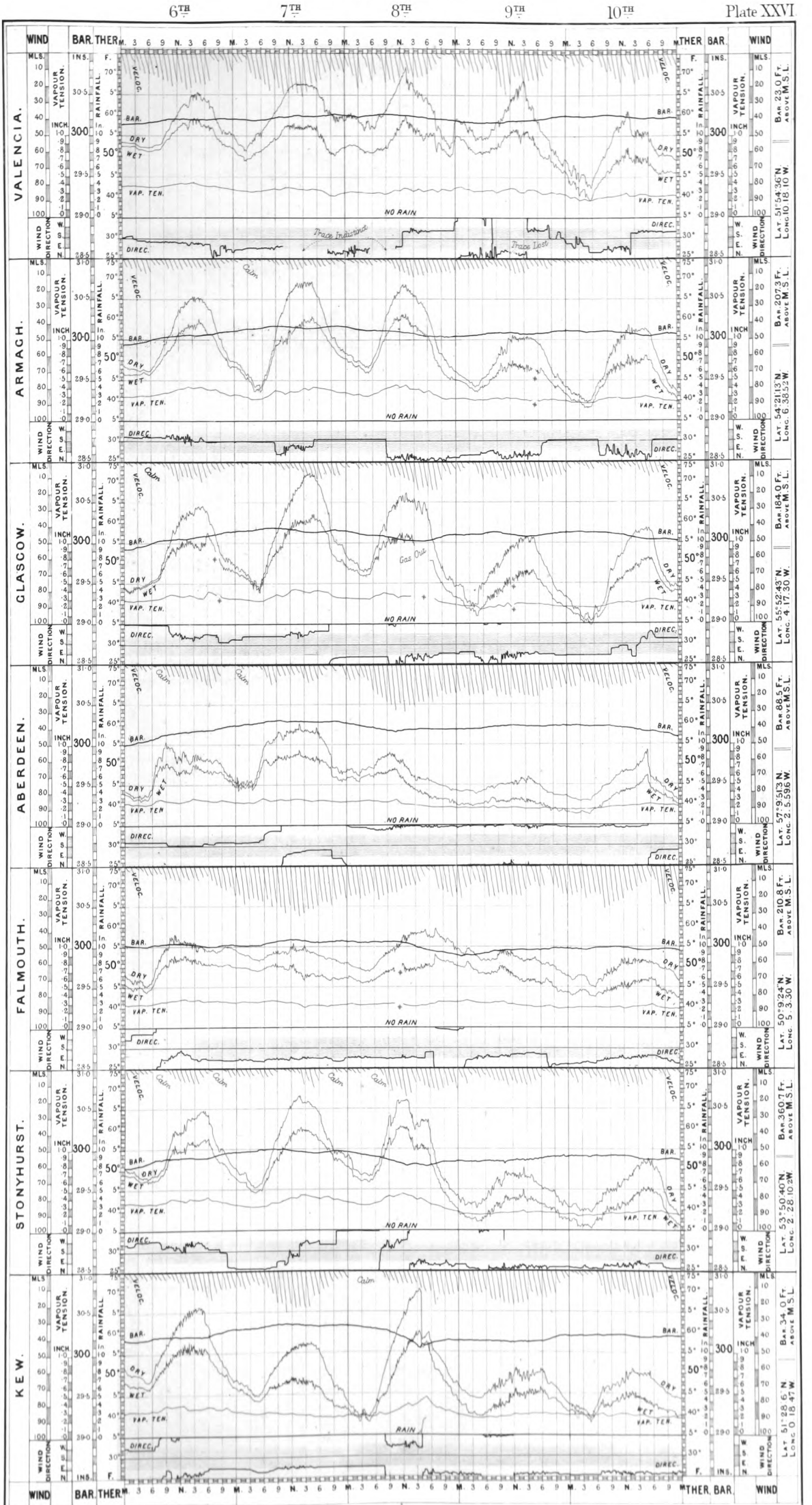


May 4th 8 a.m.

M A Y, – 1871.

Plate XXVI.

6TH 7TH 8TH 9TH 10TH

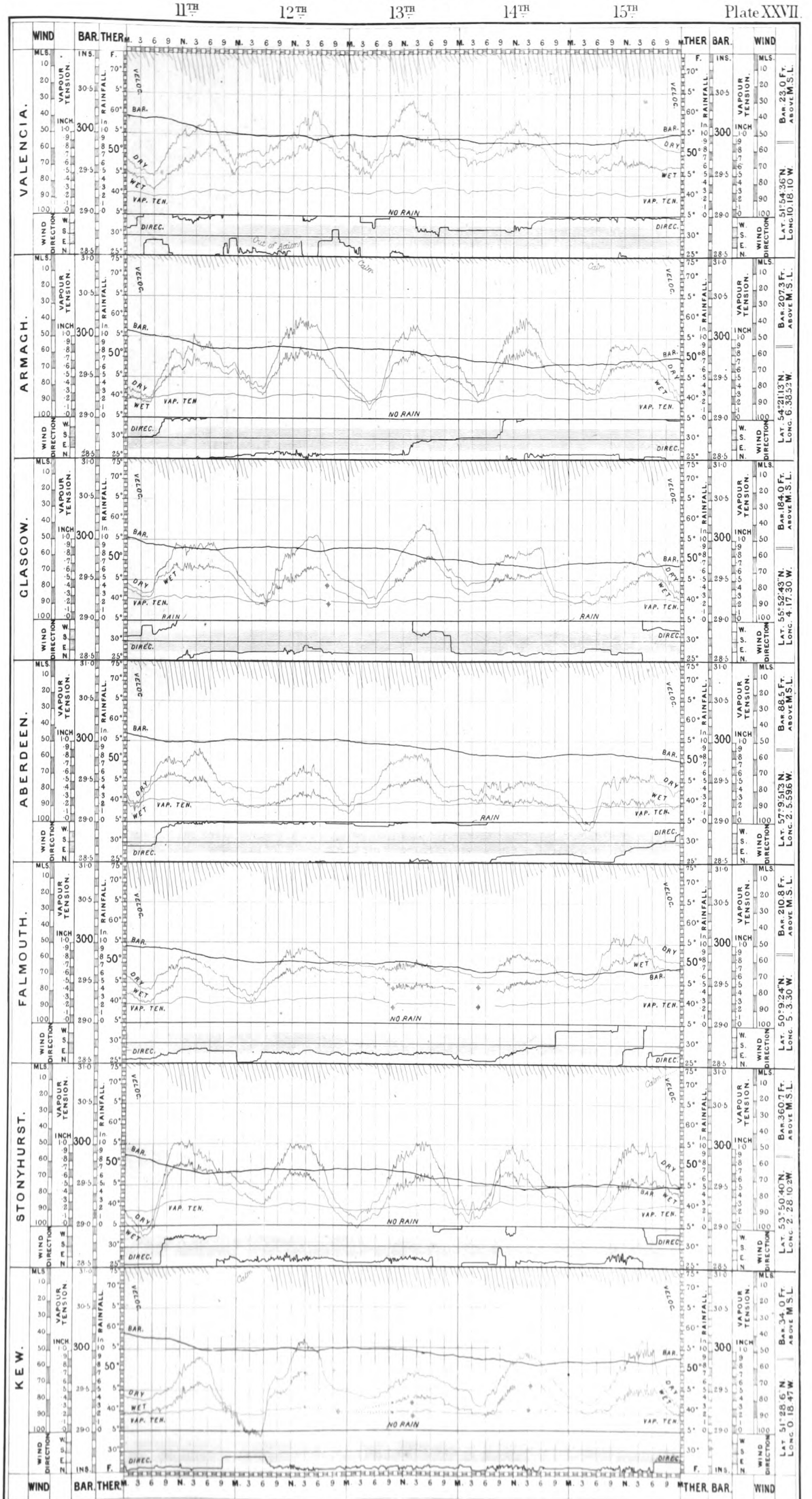


§ No Trace or Out of Action.

M A Y, 1871.

Plate XXVII.

11TH 12TH 13TH 14TH 15TH



§ No Trace or Out of Action.

M A Y, 1871.

16TH 17TH 18TH 19TH 20TH

Plate XXVIII.

VALENCIA. Bar. 23.0 Ft. above M.S.L. Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH. Bar 207.3 Ft. above M.S.L. Lat. 54°21'13 N. Long. 6°38'52 W.

GLASCOW. Bar. 184.0 Ft. above M.S.L. Lat. 55°52'43 N. Long. 4°17'30 W.

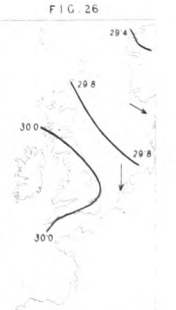
ABERDEEN. Bar. 88.5 Ft. above M.S.L. Lat. 57°9'51"N. Long. 2°5'596 W.

FALMOUTH. Bar. 210.8 Ft. above M.S.L. Lat. 50°9'34"N. Long. 5°3'30 W.

STONYHURST. Bar. 360.7 Ft. above M.S.L. Lat. 53°50'40"N. Long. 2°28'10.2 W.

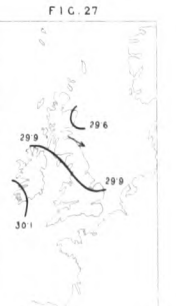
KEW. Bar. 34.0 Ft. above M.S.L. Lat. 51°28'6" N. Long. 0°18'47 W.

FIG. 26



May 17th 8 a.m.

FIG. 27



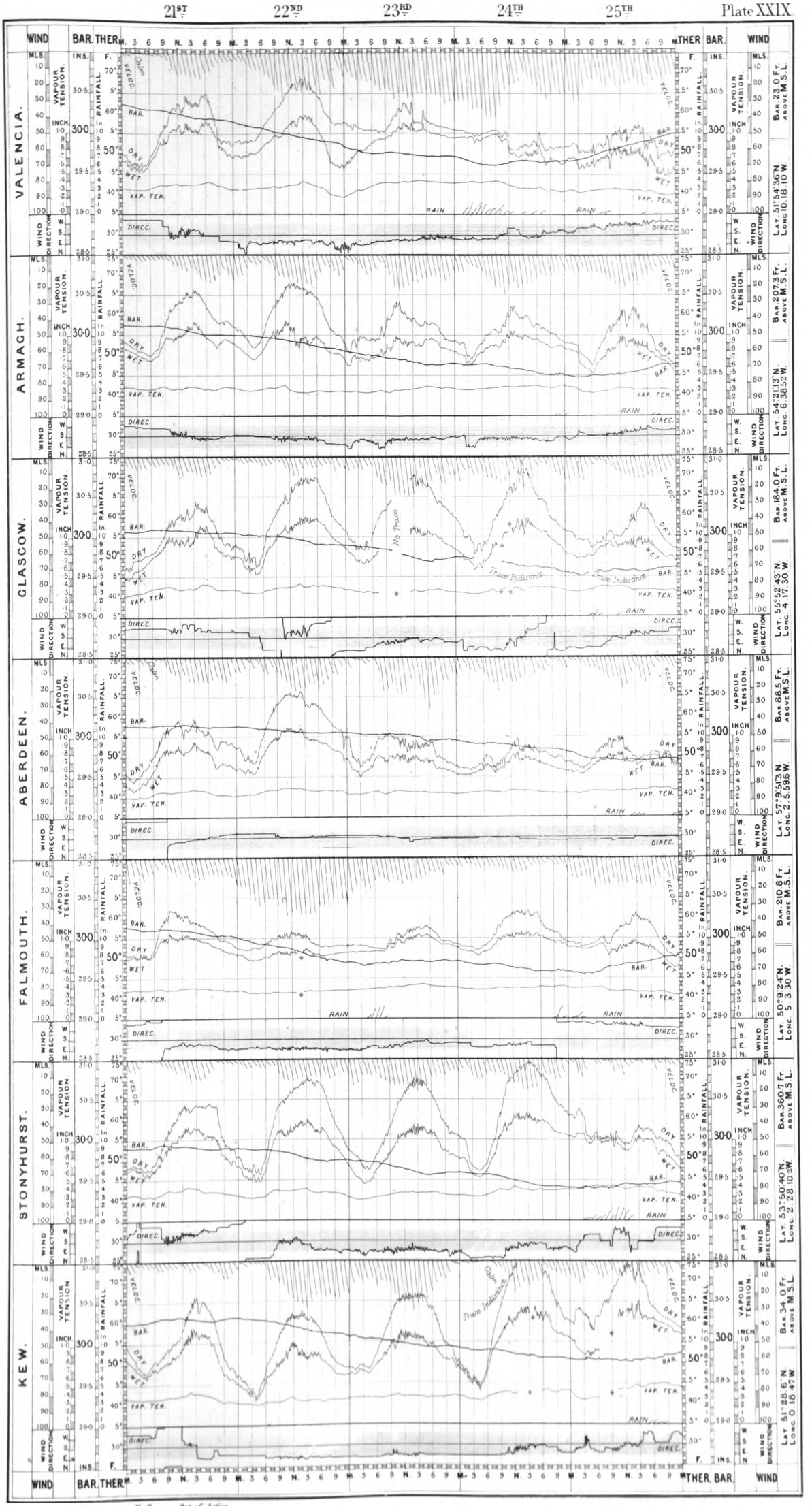
May 17th 6 p.m.

* No Trace or Out of Action

M A Y, 1871.

21ST 22ND 23RD 24TH 25TH

Plate XXIX.

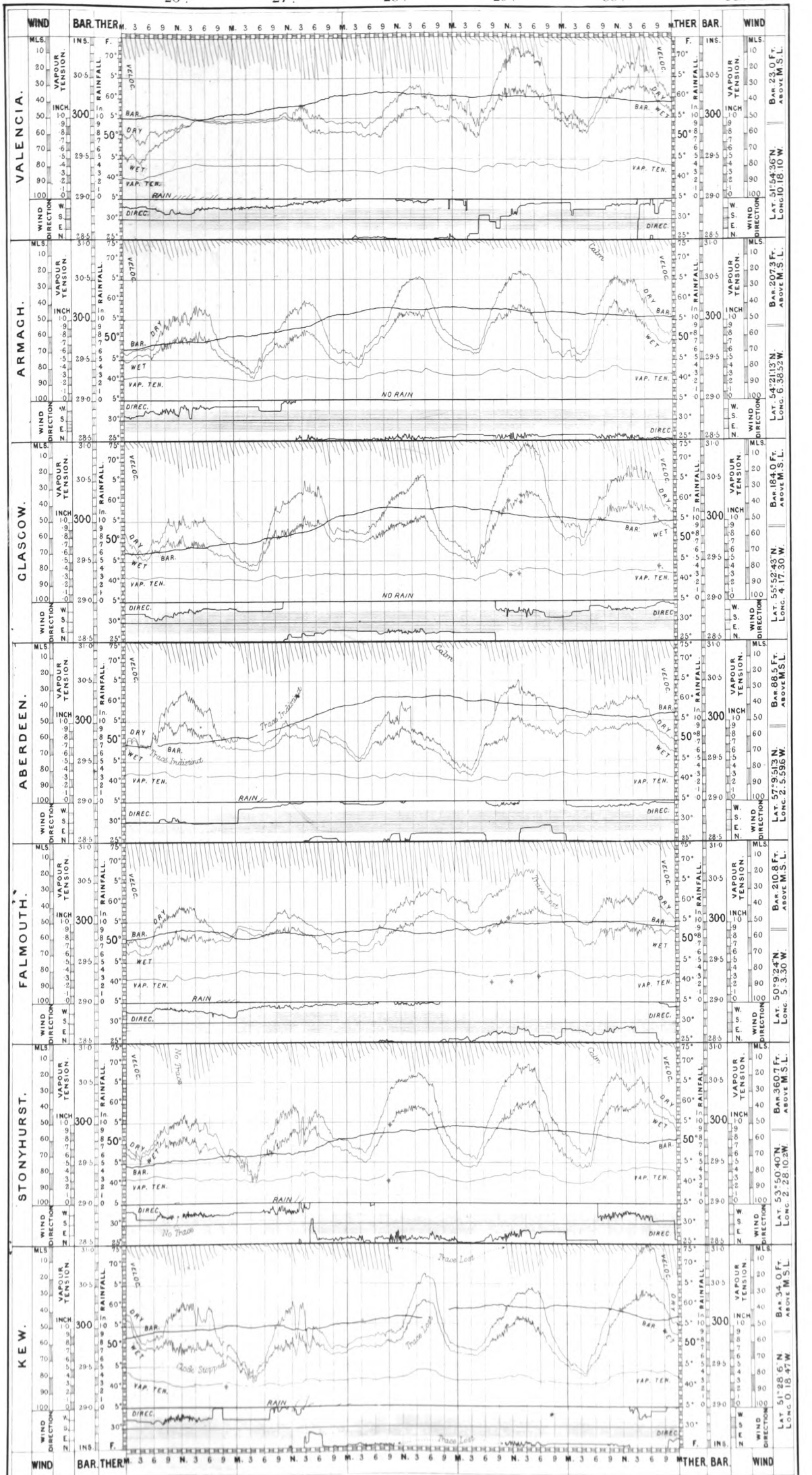


* No Trace or Out of Action.

MAY, 1871.

Plate XXX

26TH 27TH 28TH 29TH 30TH

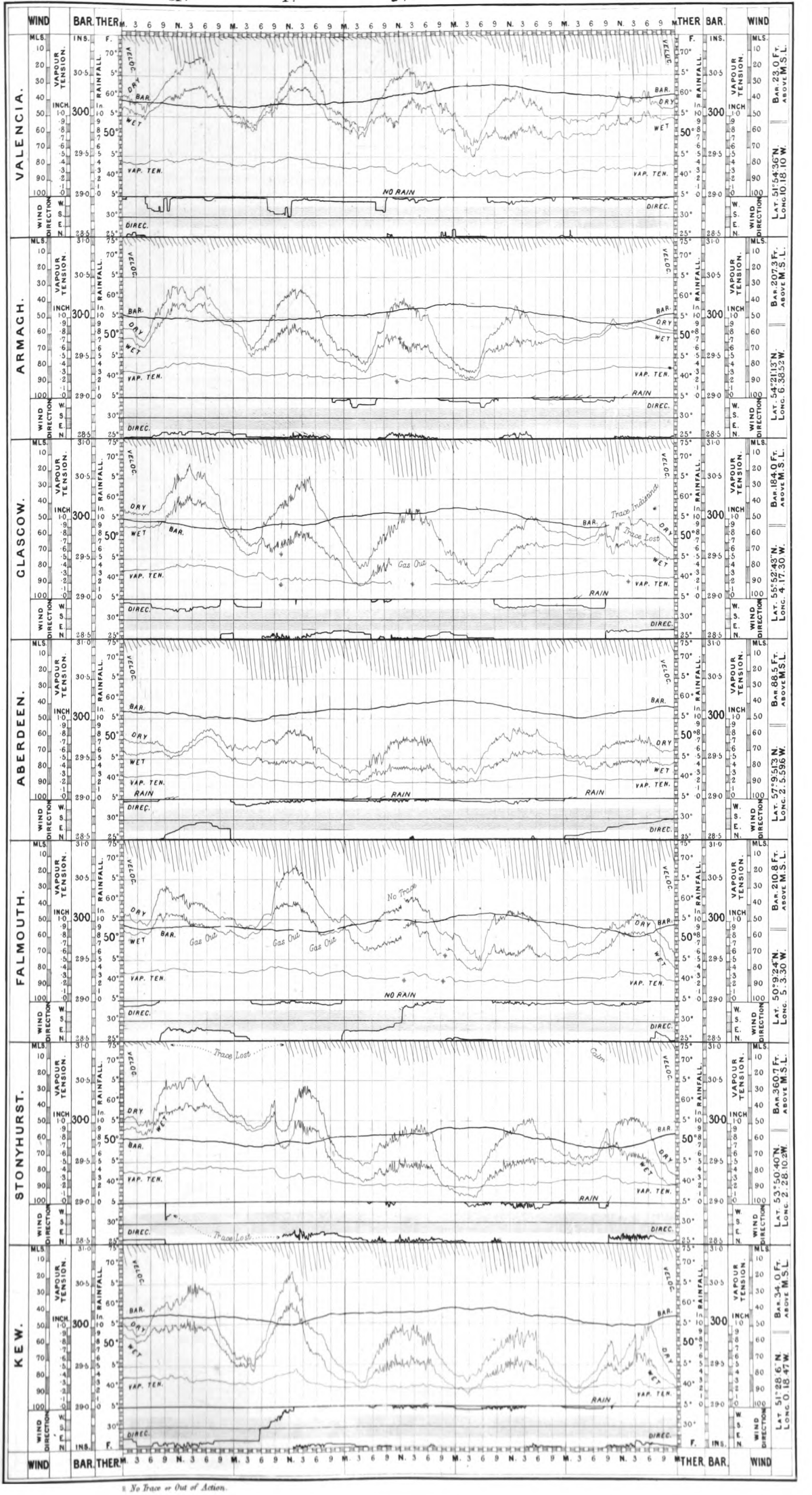


* No Trace or Out of Action.

MAY & JUNE, 1871.

31ST | 1ST | 2ND | 3RD | 4TH

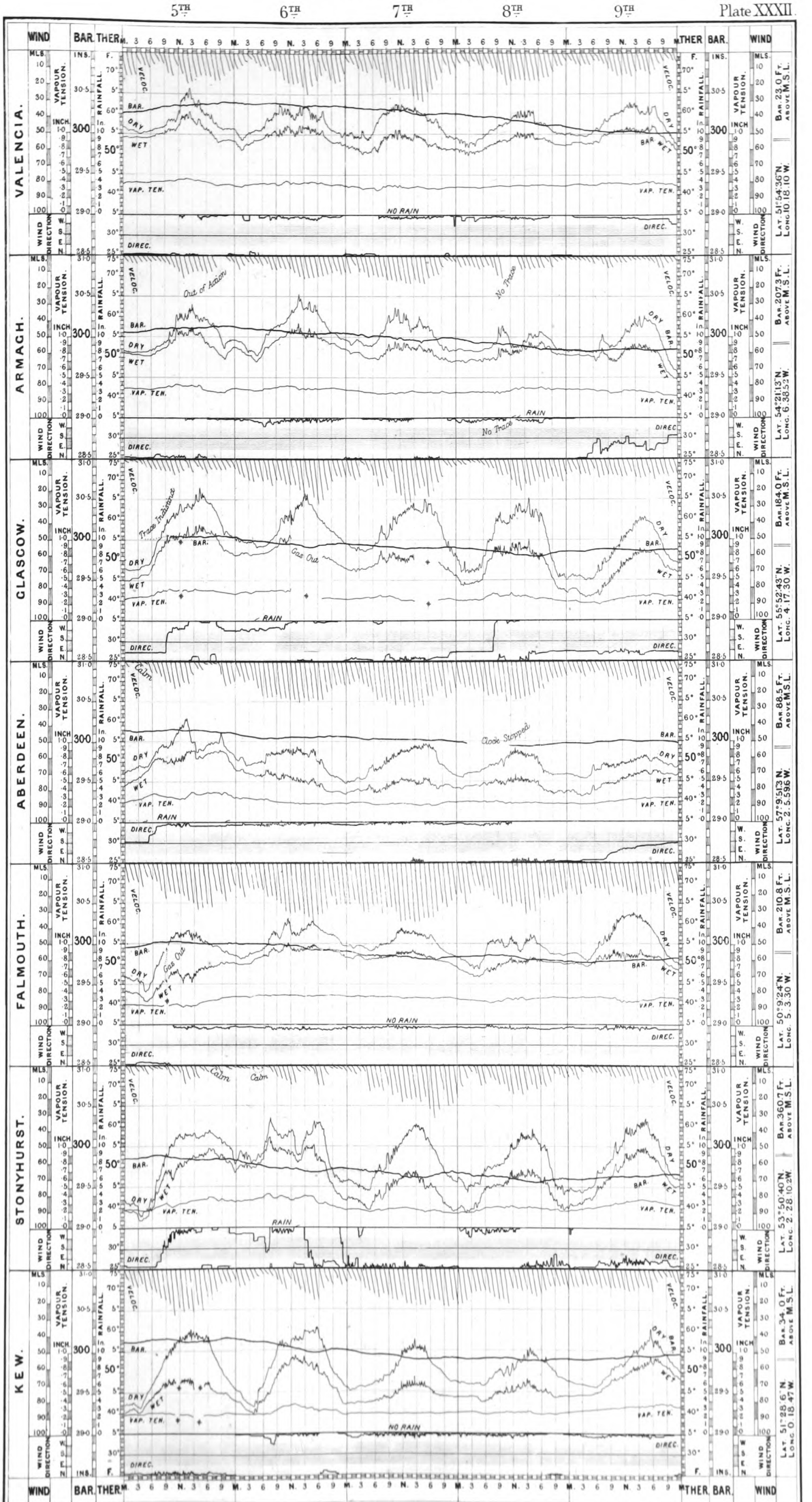
Plate XXXI.



* *No Trace or Out of Action.*

JUNE, 1871.

5TH 6TH 7TH 8TH 9TH Plate XXXII.

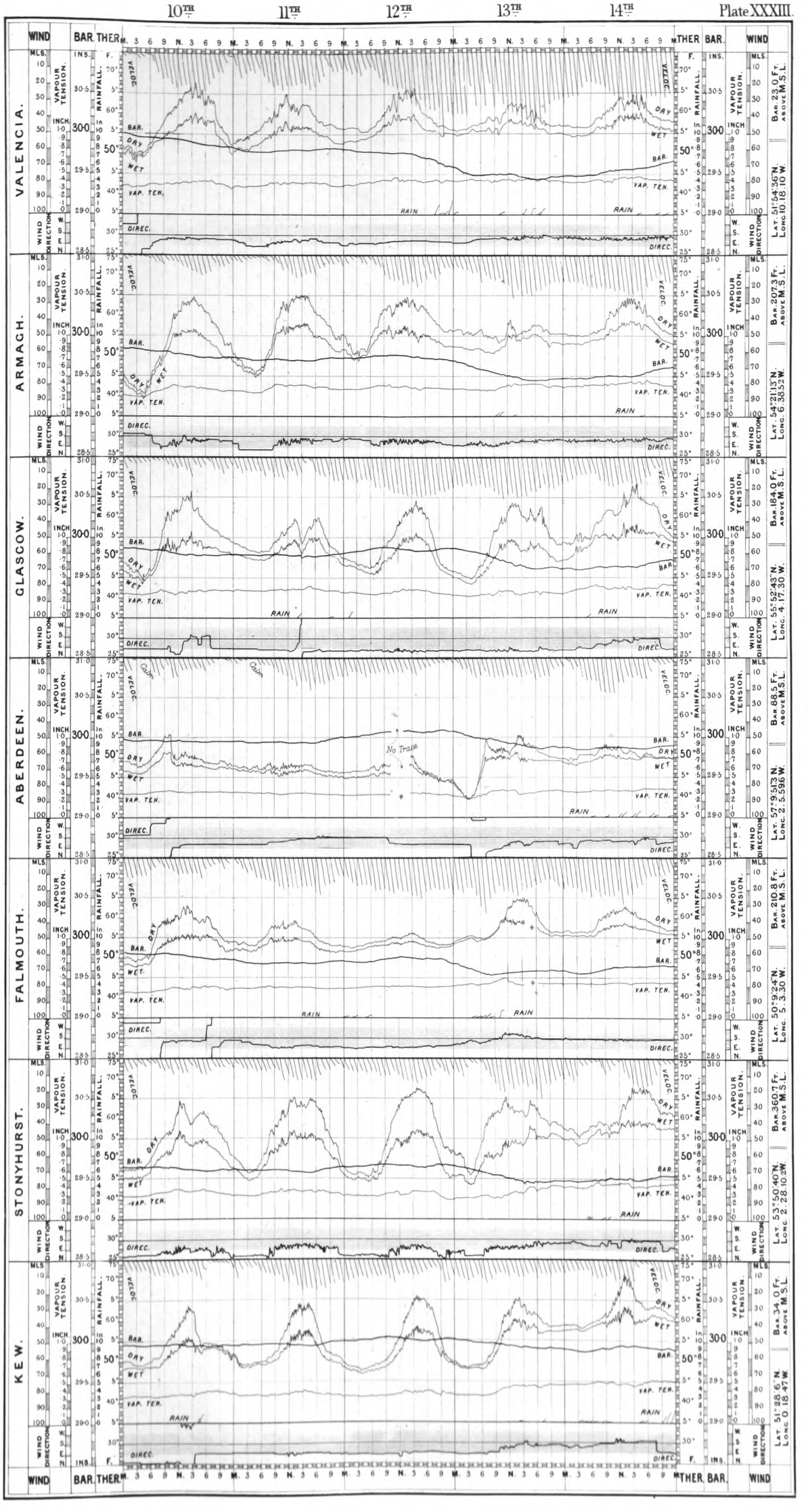


§ *No Trace or Out of Action.*

JUNE, 1871.

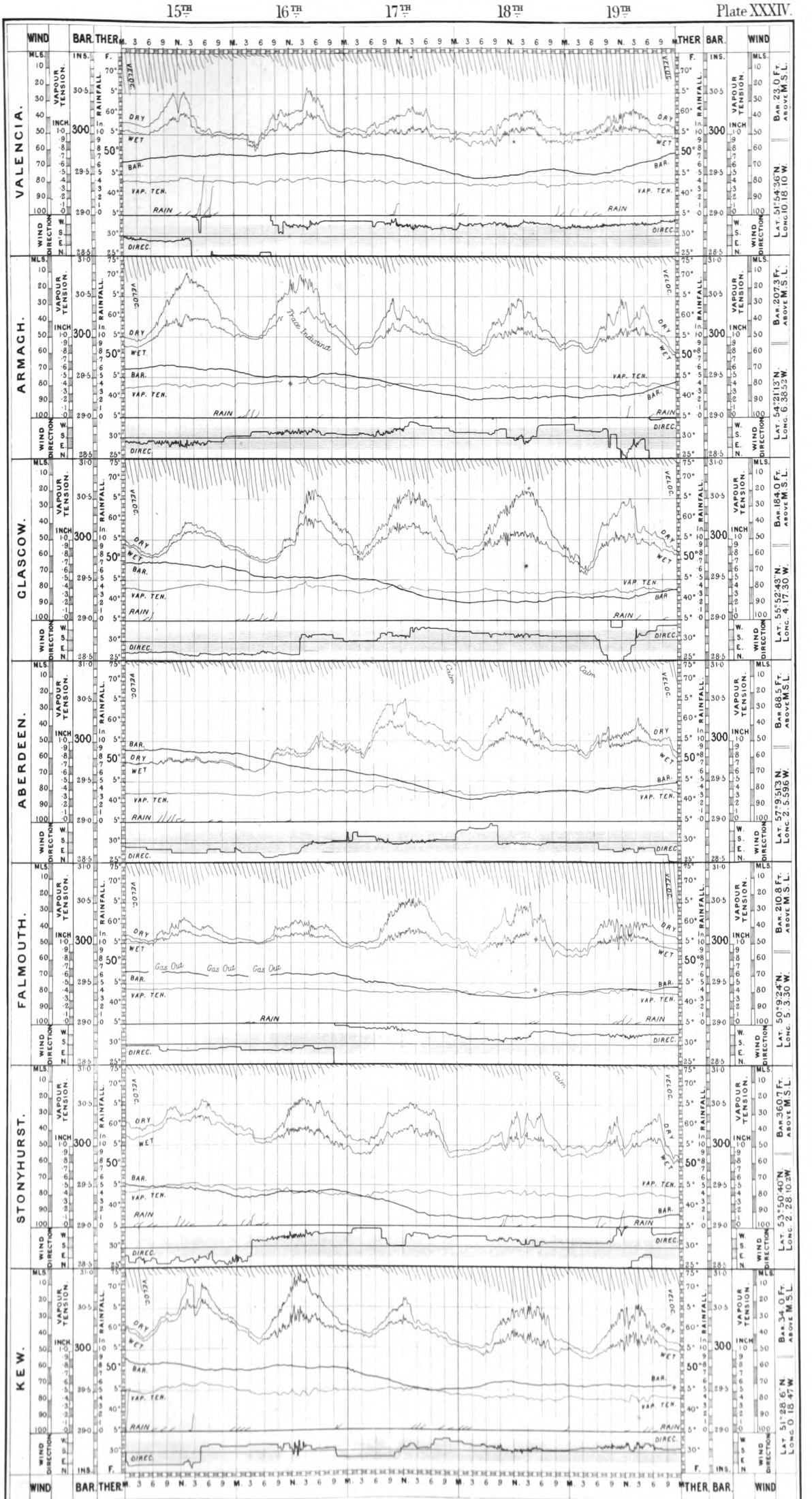
Plate XXXIII.

10TH 11TH 12TH 13TH 14TH



J U N E, _ 1871.

Plate XXXIV.

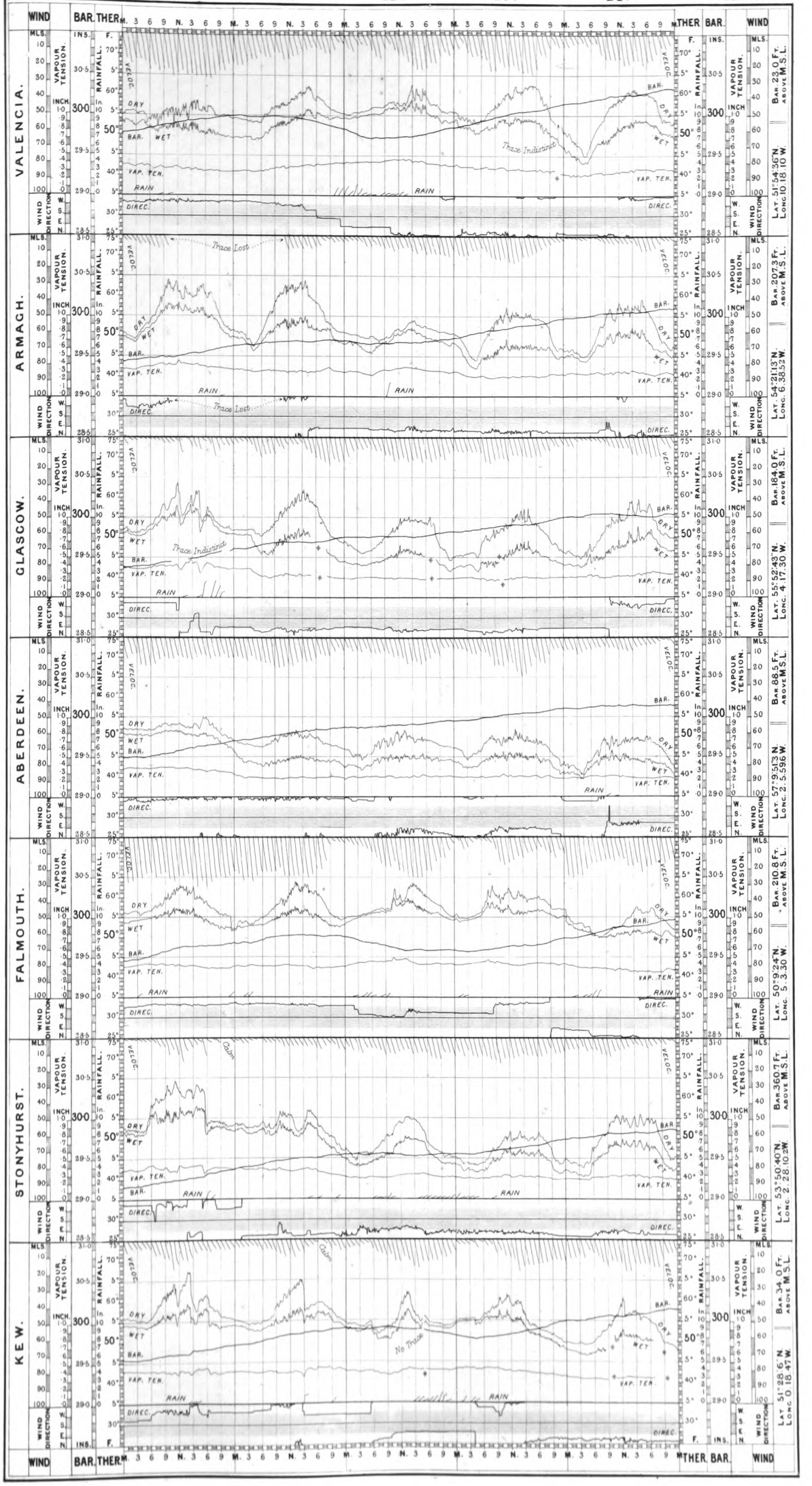


* No Trace or Out of Action

JUNE, 1871.

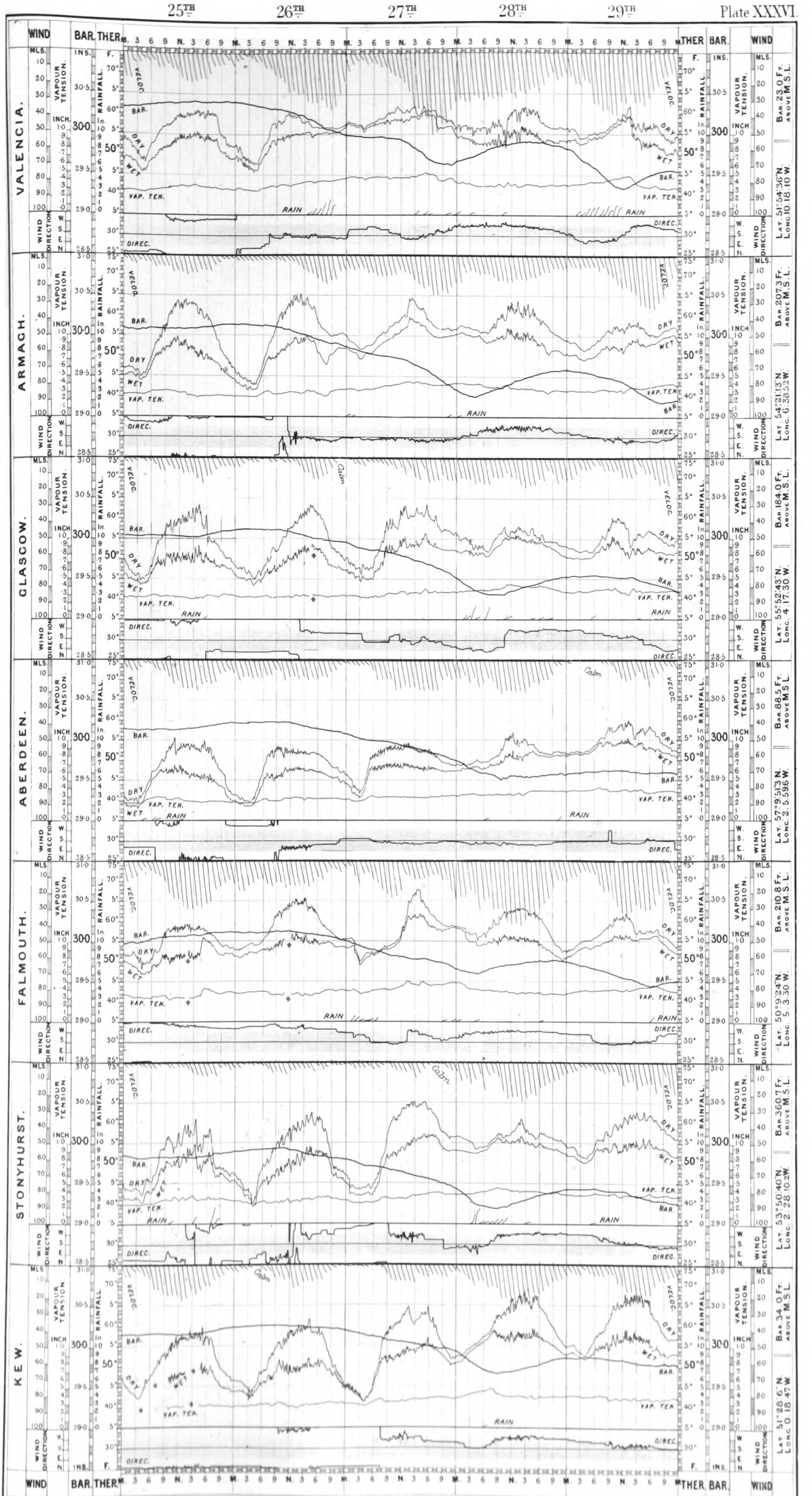
20TH 21ST 22ND 23RD 24TH

Plate XXXV.



JUNE, 1871.

25TH 26TH 27TH 28TH 29TH Plate XXXVI.

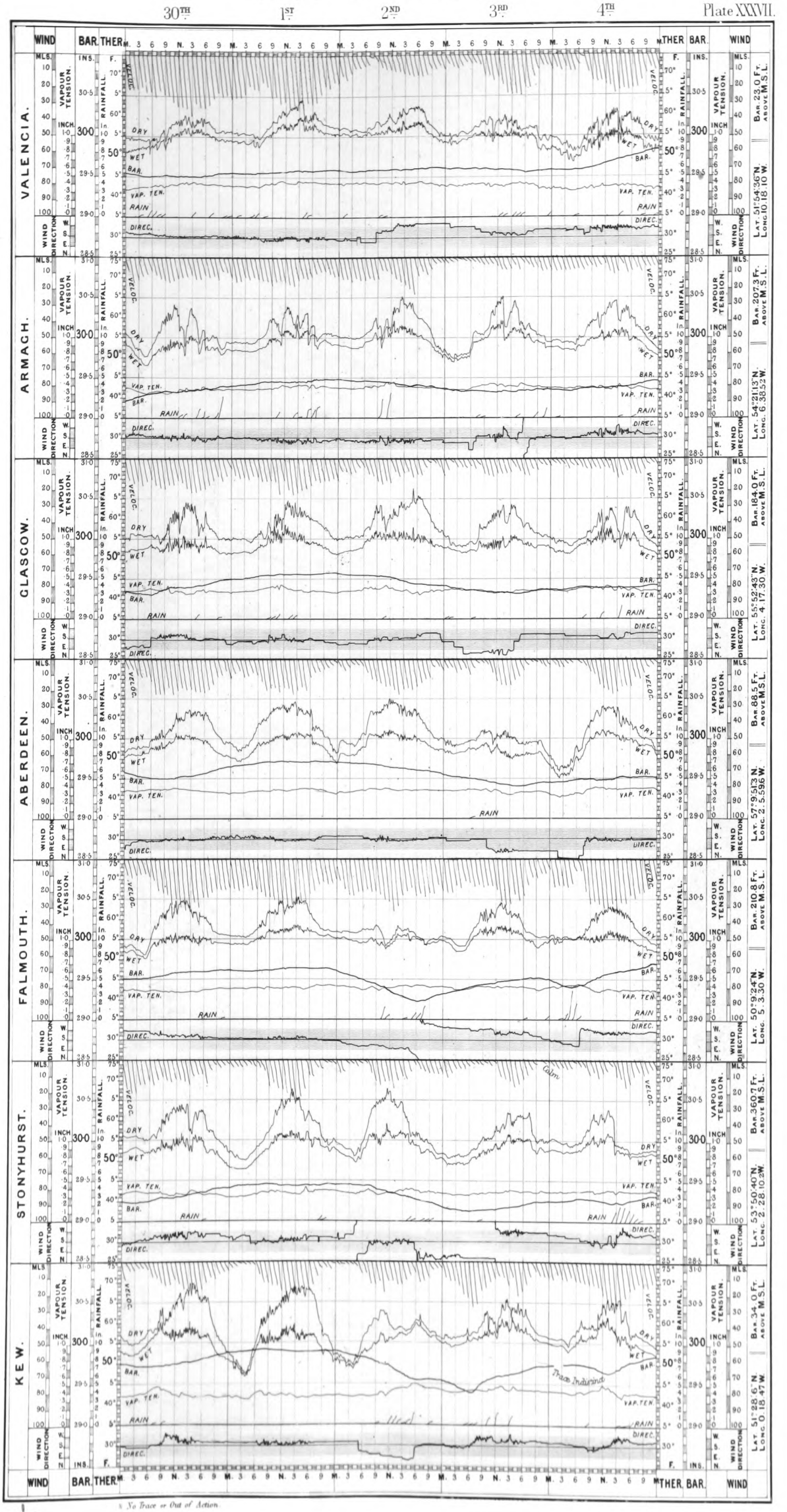


§ No Trace or Out of Action.

JUNE & JULY, 1871

30TH | 1ST | 2ND | 3RD | 4TH

Plate XXXVII.



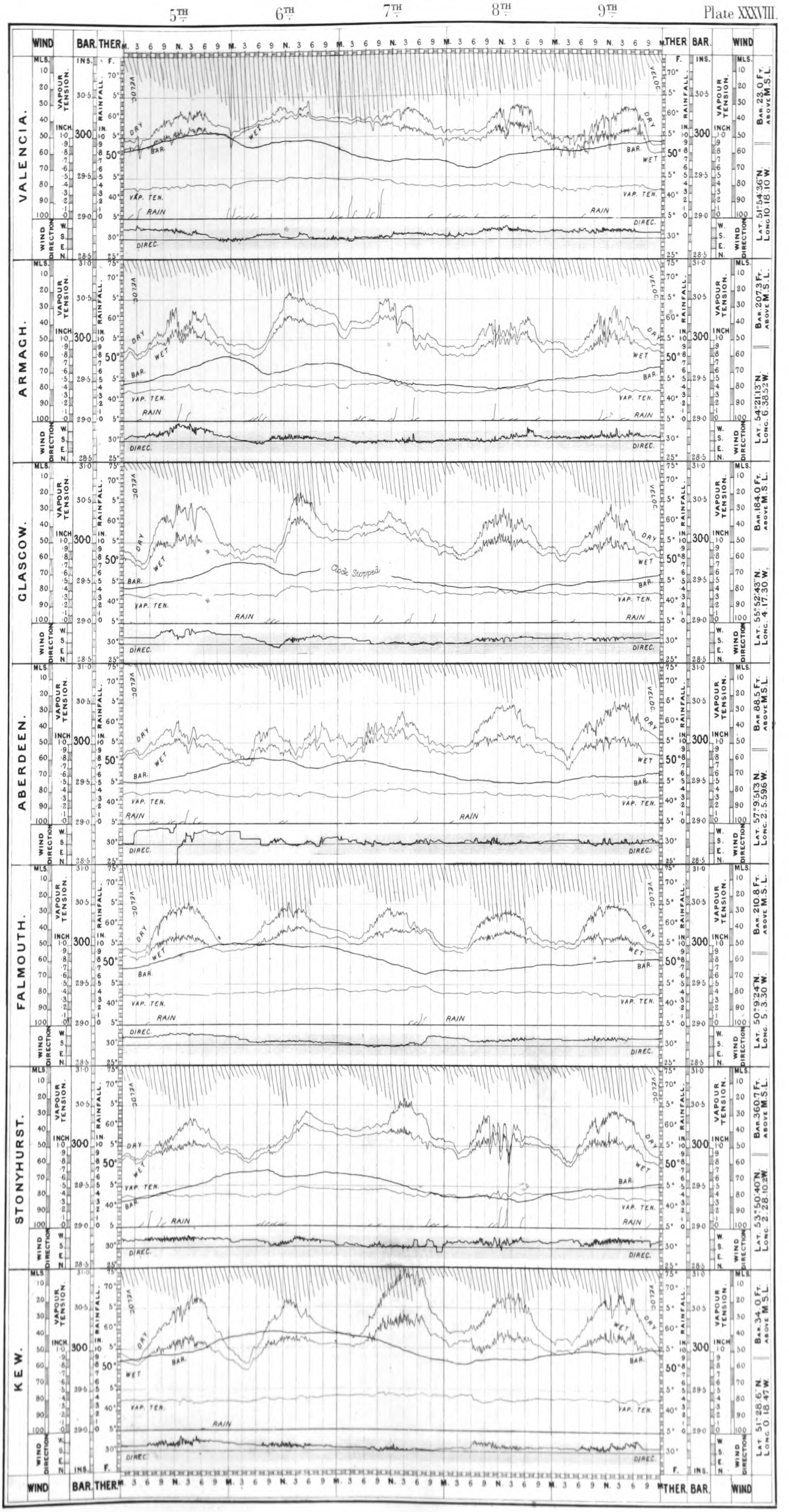
* No Trace or Out of Action.

70

JULY, 1871.

5TH 6TH 7TH 8TH 9TH

Plate XXXVIII.



JULY, 1871

Plate XXXIX.

10TH 11TH 12TH 13TH 14TH

WIND BAR. THER M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER BAR. WIND

VALENCIA.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. INCH RAINFALL. VAPOUR TENSION. WIND DIRECTION W. S. E. N.

Bar. 23.0 Fr. above M.S.L.

Lat. 51° 54' 36" N. Long. 10. 18. 10 W.

ARMAGH.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. INCH RAINFALL. VAPOUR TENSION. WIND DIRECTION W. S. E. N.

Bar. 207.3 Fr. above M.S.L.

Lat. 54° 21' 13" N. Long. 6. 38. 52 W.

GLASCOW.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. INCH RAINFALL. VAPOUR TENSION. WIND DIRECTION W. S. E. N.

Bar. 184.0 Fr. above M.S.L.

Lat. 55° 52' 43" N. Long. 4. 17. 30 W.

ABERDEEN.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. INCH RAINFALL. VAPOUR TENSION. WIND DIRECTION W. S. E. N.

Bar. 88.5 Fr. above M.S.L.

Lat. 57° 9' 51" N. Long. 2. 5. 96 W.

FALMOUTH.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. INCH RAINFALL. VAPOUR TENSION. WIND DIRECTION W. S. E. N.

Bar. 210.8 Fr. above M.S.L.

Lat. 50° 9' 24" N. Long. 5. 3. 30 W.

STONYHURST.

MLS. INS. F. VELOC. Calm. Trace. Intermit. DRY WET BAR. VAP. TEN. RAIN DIREC. INCH RAINFALL. VAPOUR TENSION. WIND DIRECTION W. S. E. N.

Bar. 360.7 Fr. above M.S.L.

Lat. 53° 50' 40" N. Long. 2. 28. 10.2 W.

KEW.

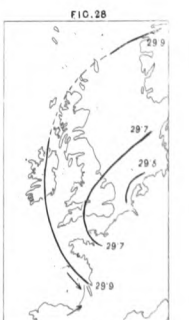
MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. INCH RAINFALL. VAPOUR TENSION. WIND DIRECTION W. S. E. N.

Bar. 34.0 Fr. above M.S.L.

Lat. 51° 28. 6' N. Long. 0. 18. 47 W.

WIND BAR. THER M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER BAR. WIND

FIG. 28



July 11th 8 a.m.

* No Trace or Out of Action.

JULY, — 1871

15TH 16TH 17TH 18TH 19TH

Plate XL.

VALENCIA. Bar. 23.0 Ft. above M.S.L. Lat. 51°54'36" N. Long. 10.18.10 W.

ARMAGH. Bar. 207.3 Ft. above M.S.L. Lat. 54°21'13" N. Long. 6.38.53 W.

GLASGOW. Bar. 184.0 Ft. above M.S.L. Lat. 55°52'43" N. Long. 4.17.30 W.

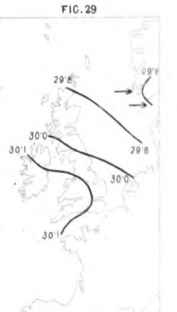
ABERDEEN. Bar. 88.5 Ft. above M.S.L. Lat. 57°9'51" N. Long. 2.5.39 W.

FALMOUTH. Bar. 210.8 Ft. above M.S.L. Lat. 50°9'24" N. Long. 5.3.30 W.

STONYHURST. Bar. 360.7 Ft. above M.S.L. Lat. 53°50'40" N. Long. 2.28.10 W.

KEW. Bar. 34.0 Ft. above M.S.L. Lat. 51°28.6" N. Long. 0.18.47 W.

FIG. 29

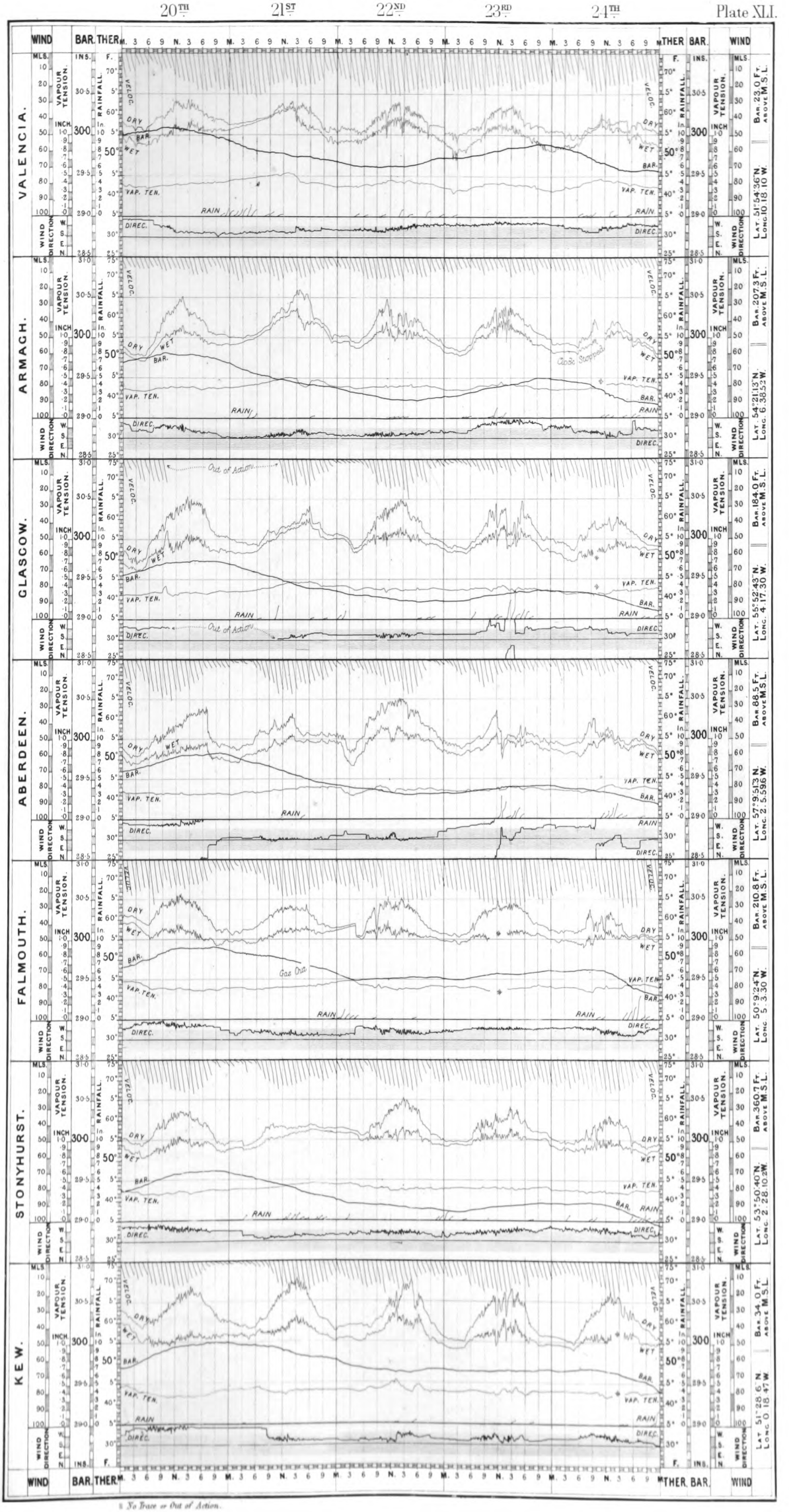


July 19th 8 a.m.

* No Trace or Out of Action.

JULY.—1871.

20TH 21ST 22ND 23RD 24TH Plate XLI.

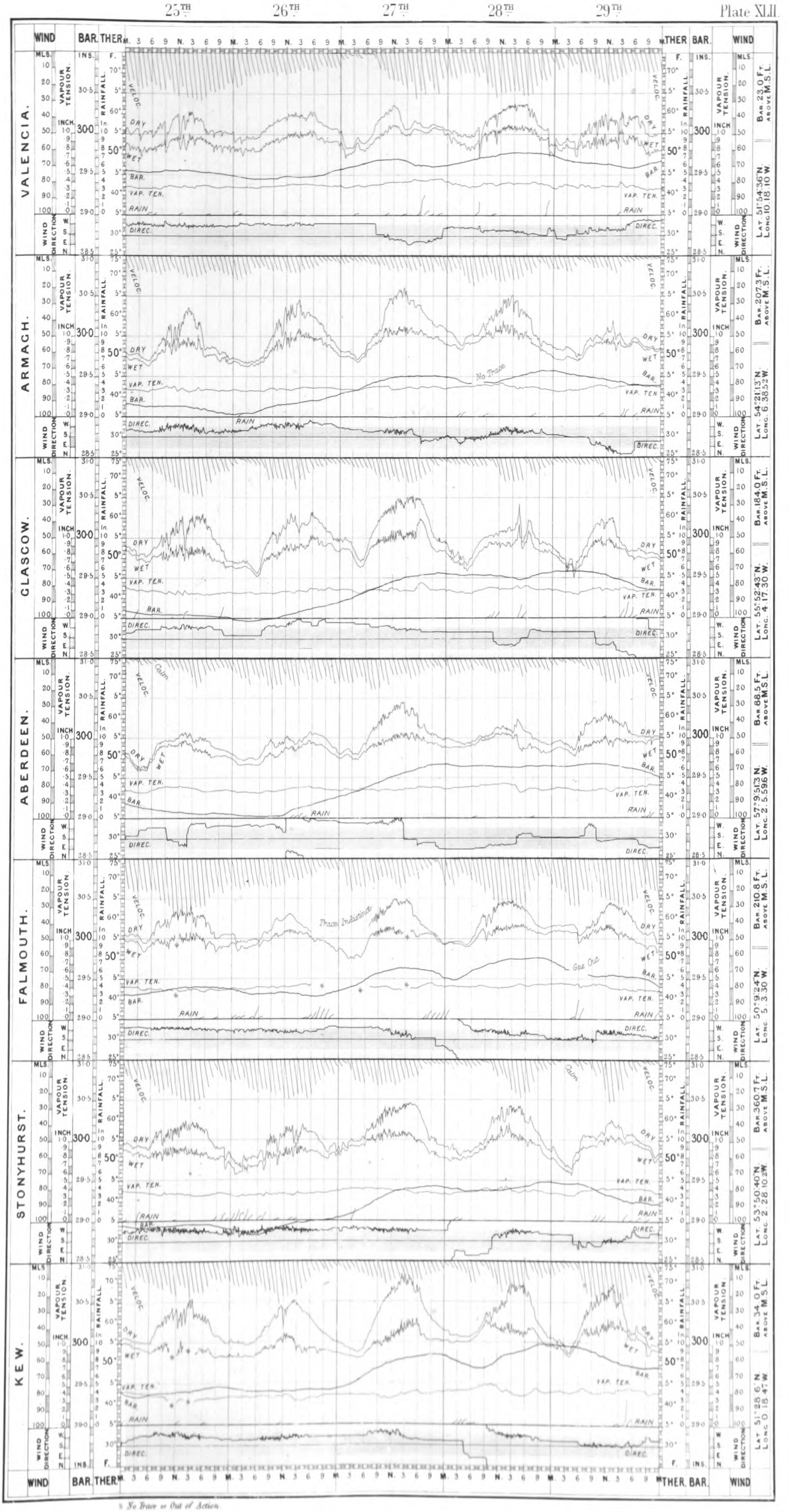


§ No Trace or Out of Action.

JULY, 1871.

25TH 26TH 27TH 28TH 29TH

Plate XLII.



* No Trace or Out of Action.

JULY & AUGUST, 1871.

Plate XLIII.

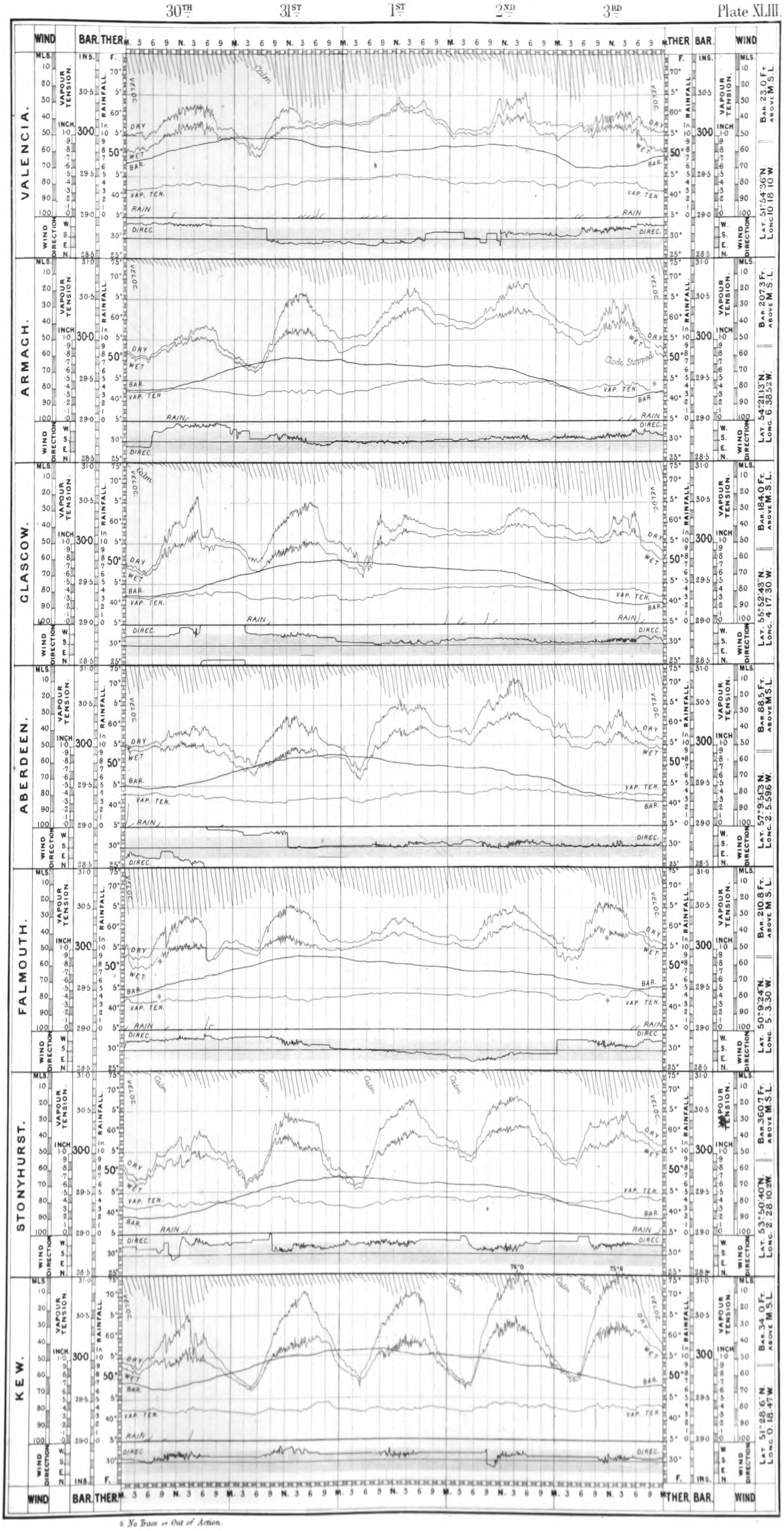


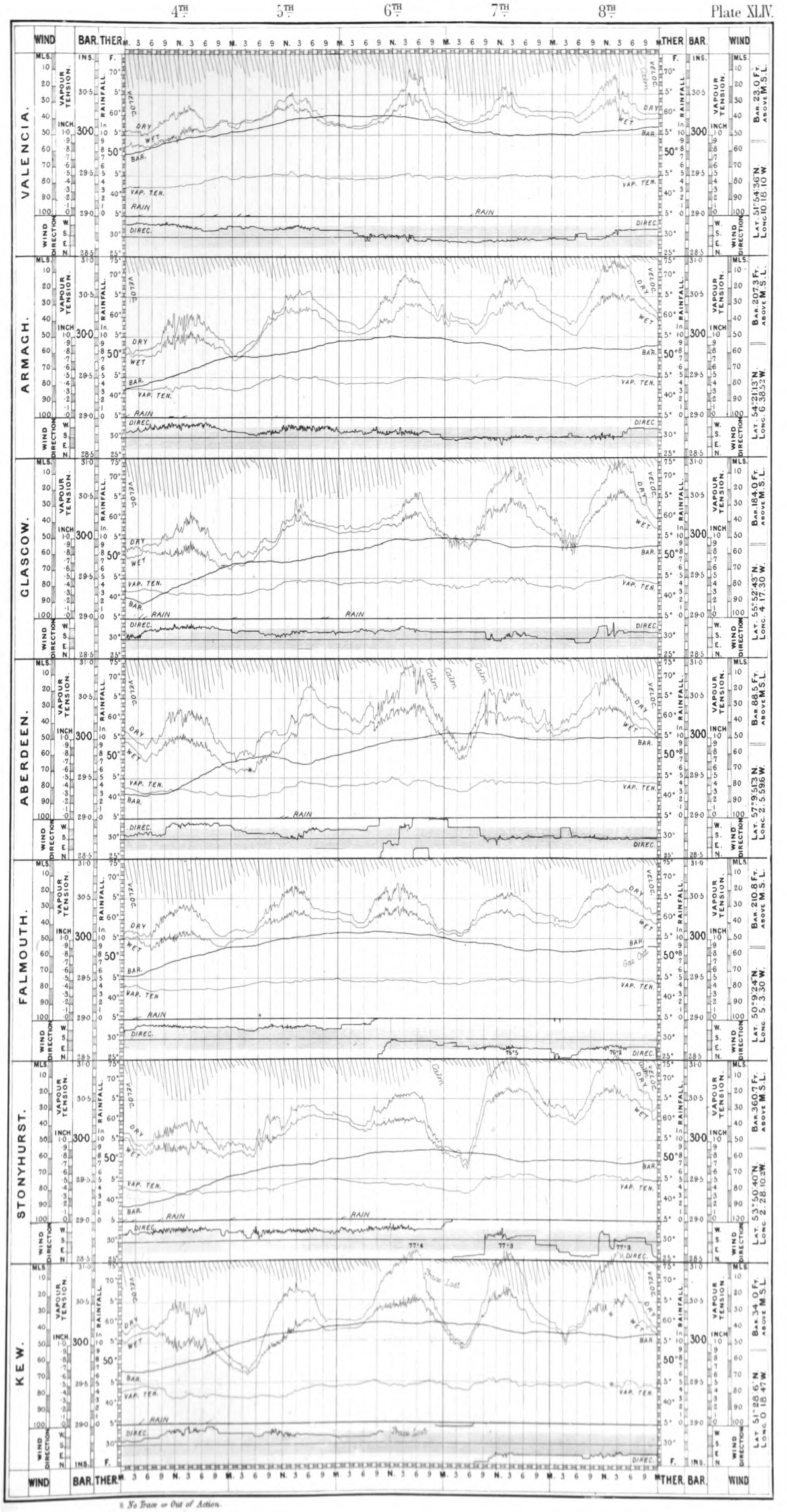
FIG. 30

July 30th 8 a.m.

x No Trace or Out of Action.

AUGUST, — 1871.

4TH 5TH 6TH 7TH 8TH Plate XLIV.

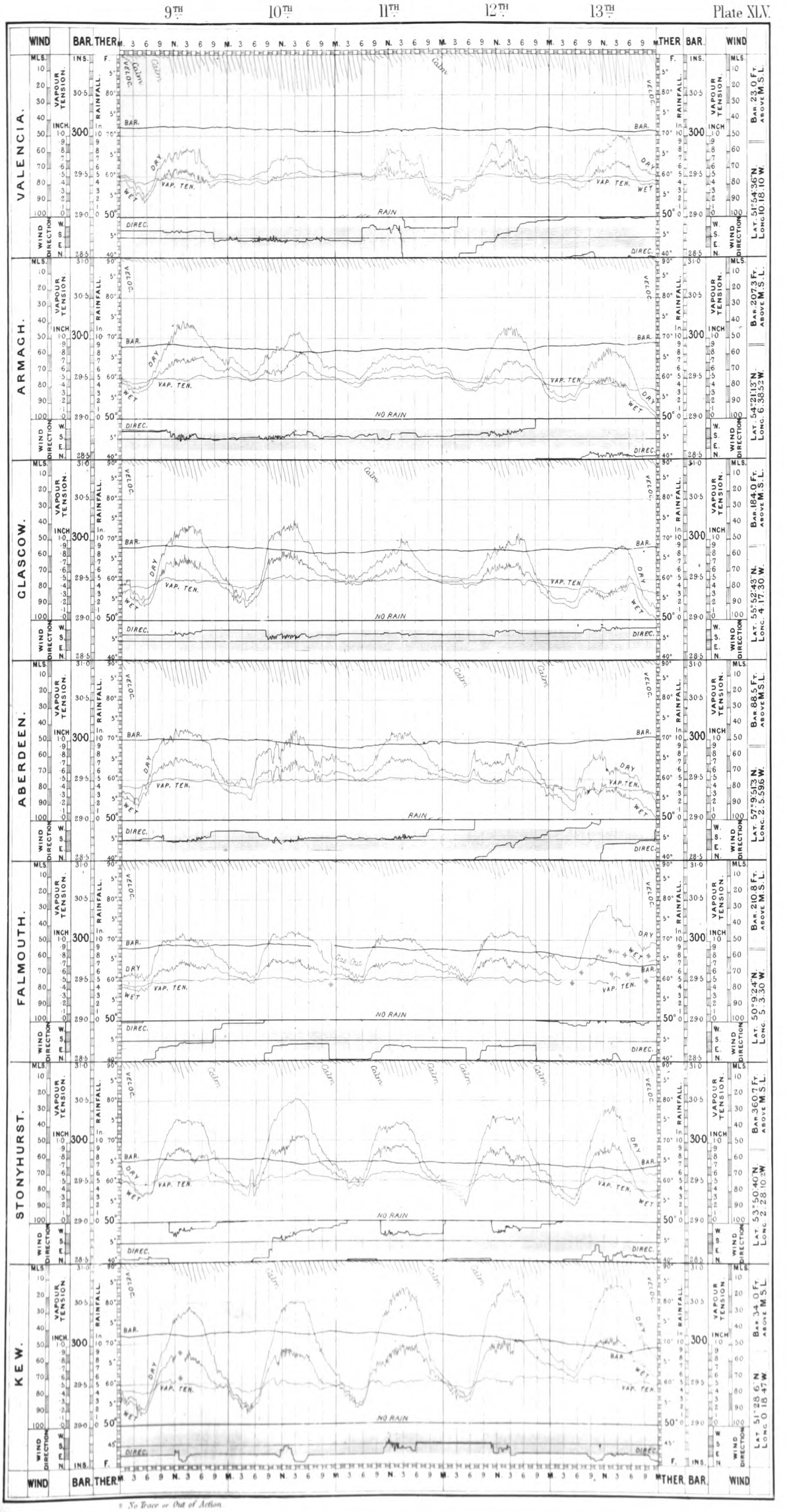


§ No Trace or Out of Action.

AUGUST, 1871.

9TH | 10TH | 11TH | 12TH | 13TH

Plate XLV.



* No Trace or Out of Action.

AUGUST, 1871.

Plate XLVI.

14TH 15TH 16TH 17TH 18TH

VALENCIA. Bar. 23.0 Ft. above M.S.L. Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH. Bar. 207.3 Ft. above M.S.L. Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW. Bar. 184.0 Ft. above M.S.L. Lat. 55°52'43"N. Long. 4.17.30 W.

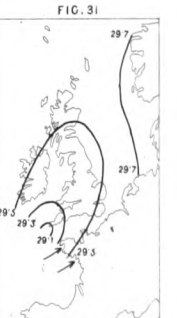
ABERDEEN. Bar. 88.5 Ft. above M.S.L. Lat. 57°9'51"N. Long. 2.5.56 W.

FALMOUTH. Bar. 210.8 Ft. above M.S.L. Lat. 50°9'24"N. Long. 5.3.30 W.

STONYHURST. Bar. 360.7 Ft. above M.S.L. Lat. 53°50'40"N. Long. 2.28.10 2W.

KEW. Bar. 34.0 Ft. above M.S.L. Lat. 51°28.6'N. Long. 0.18.47 W.

FIG. 31



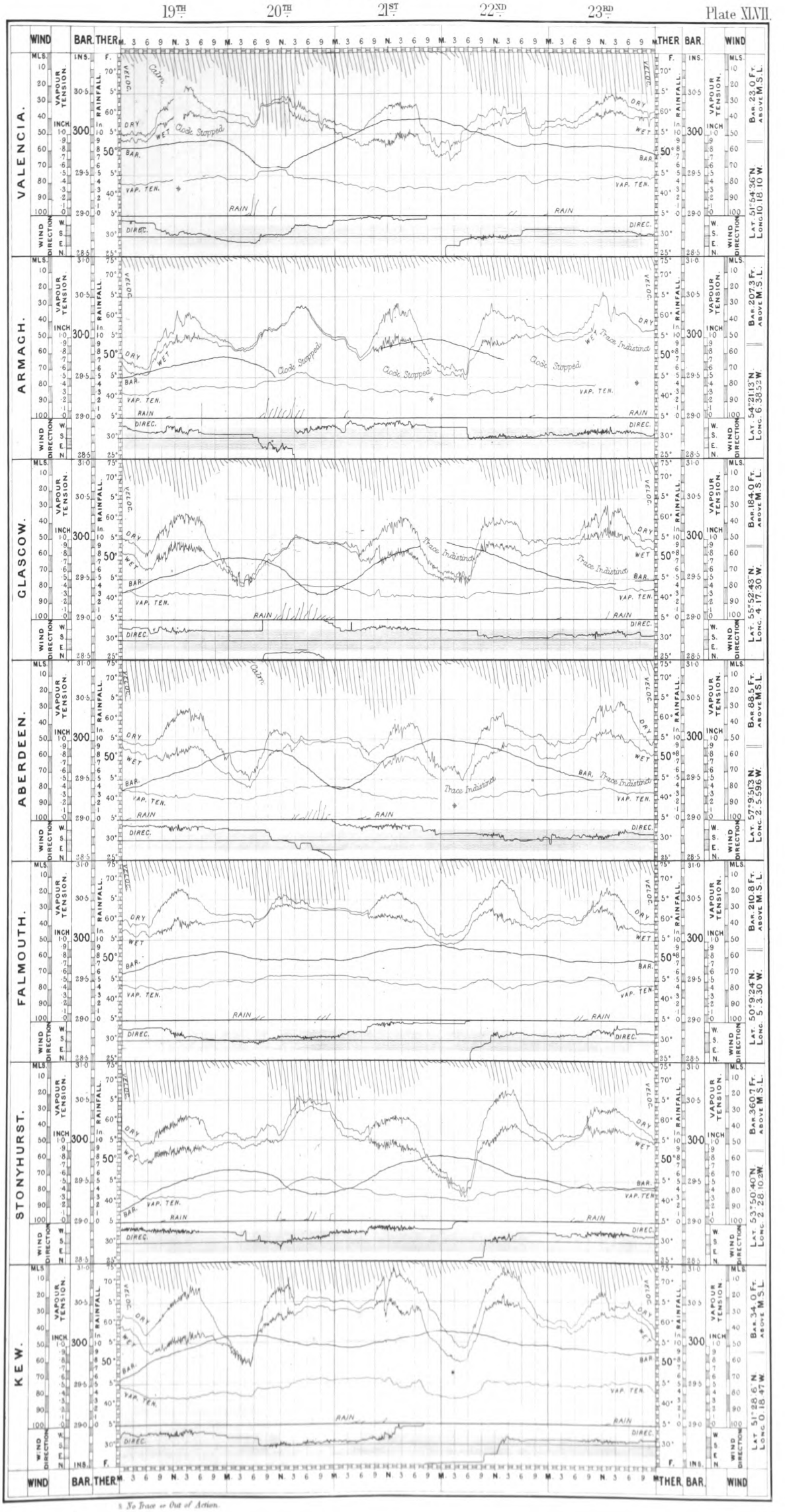
August 18th 8 a.m.

* *No Trace or Out of Action.*

AUGUST. — 1871.

19TH 20TH 21ST 22ND 23RD

Plate XLVII.



No Trace or Out of Action.

AUGUST.—1871.

24TH 25TH 26TH 27TH 28TH Plate XLVIII.

VALENCIA. ARMAGH. GLASCOW. ABERDEEN. FALMOUTH. STONYHURST. KEW.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 THER. BAR. WIND

VELOC. MLS. DRY WET BAR. VAP. TEN. RAIN DIREC. VAPOUR TENSION. INCH. RAINFALL. WIND DIRECTION. W. S. E. N.

Calm. Trace Indistinct. Clock Stopped.

VALENCIA. Bar. 23.0 Ft. above M.S.L. Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH. Bar. 207.3 Ft. above M.S.L. Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW. Bar. 184.0 Ft. above M.S.L. Lat. 55°52'43"N. Long. 4.17.30 W.

ABERDEEN. Bar. 88.5 Ft. above M.S.L. Lat. 57°9'51"N. Long. 2°.5.596 W.

FALMOUTH. Bar. 210.8 Ft. above M.S.L. Lat. 50°9'24"N. Long. 5.3.30 W.

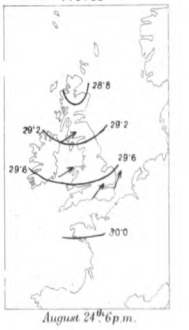
STONYHURST. Bar. 360.7 Ft. above M.S.L. Lat. 53°50'40"N. Long. 2.28.10.2W.

KEW. Bar. 34.0 Ft. above M.S.L. Lat. 51°28.6'N. Long. 0.18.4"W.

FIG. 32

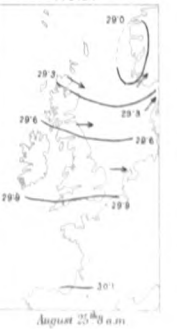
August 24th 8 a.m.

FIG. 33



August 24th 6 p.m.

FIG. 34

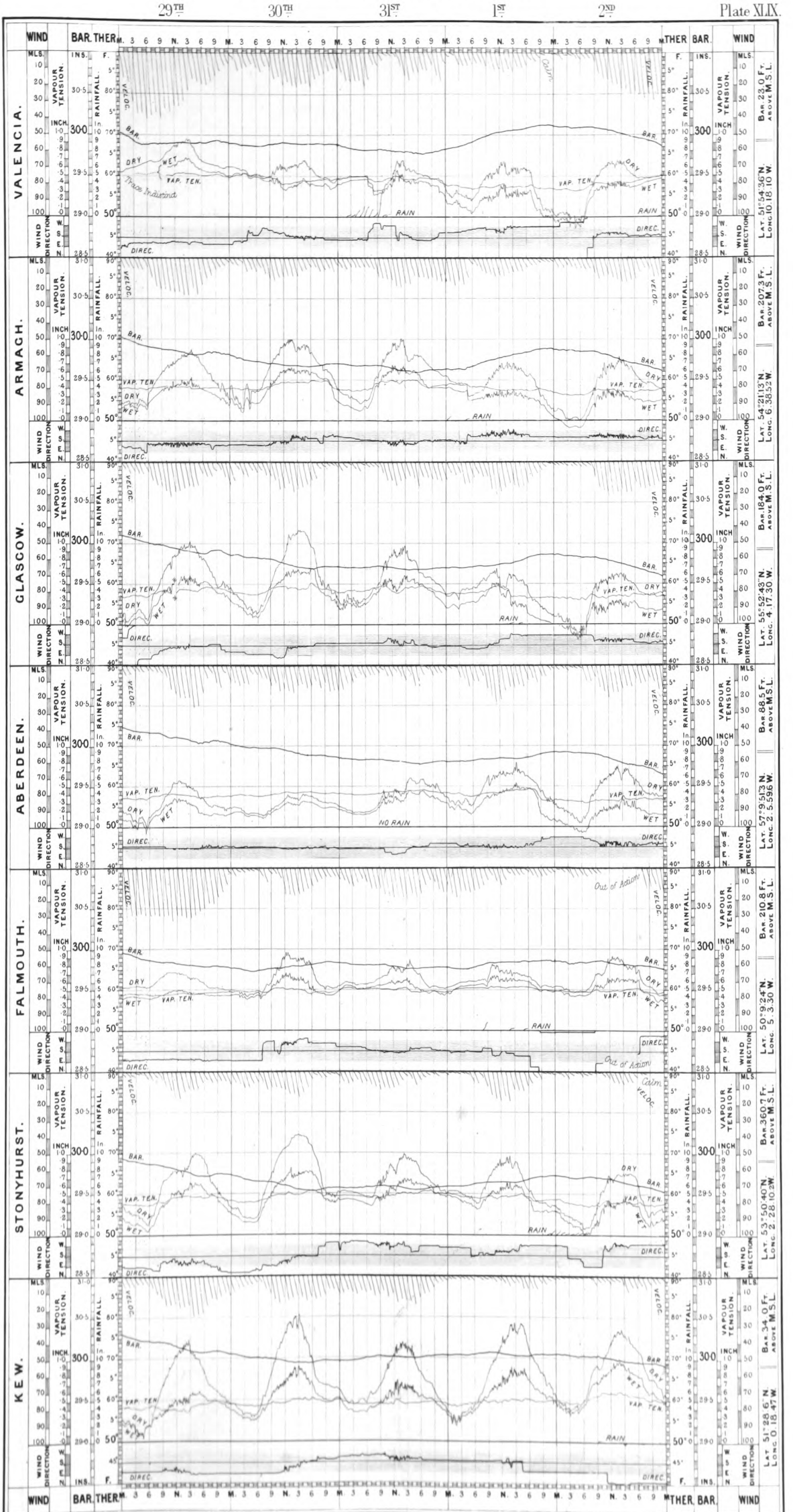


August 25th 8 a.m.

* No Trace or Out of Action.

AUGUST & SEPTEMBER, 1871.

Plate XLIX.

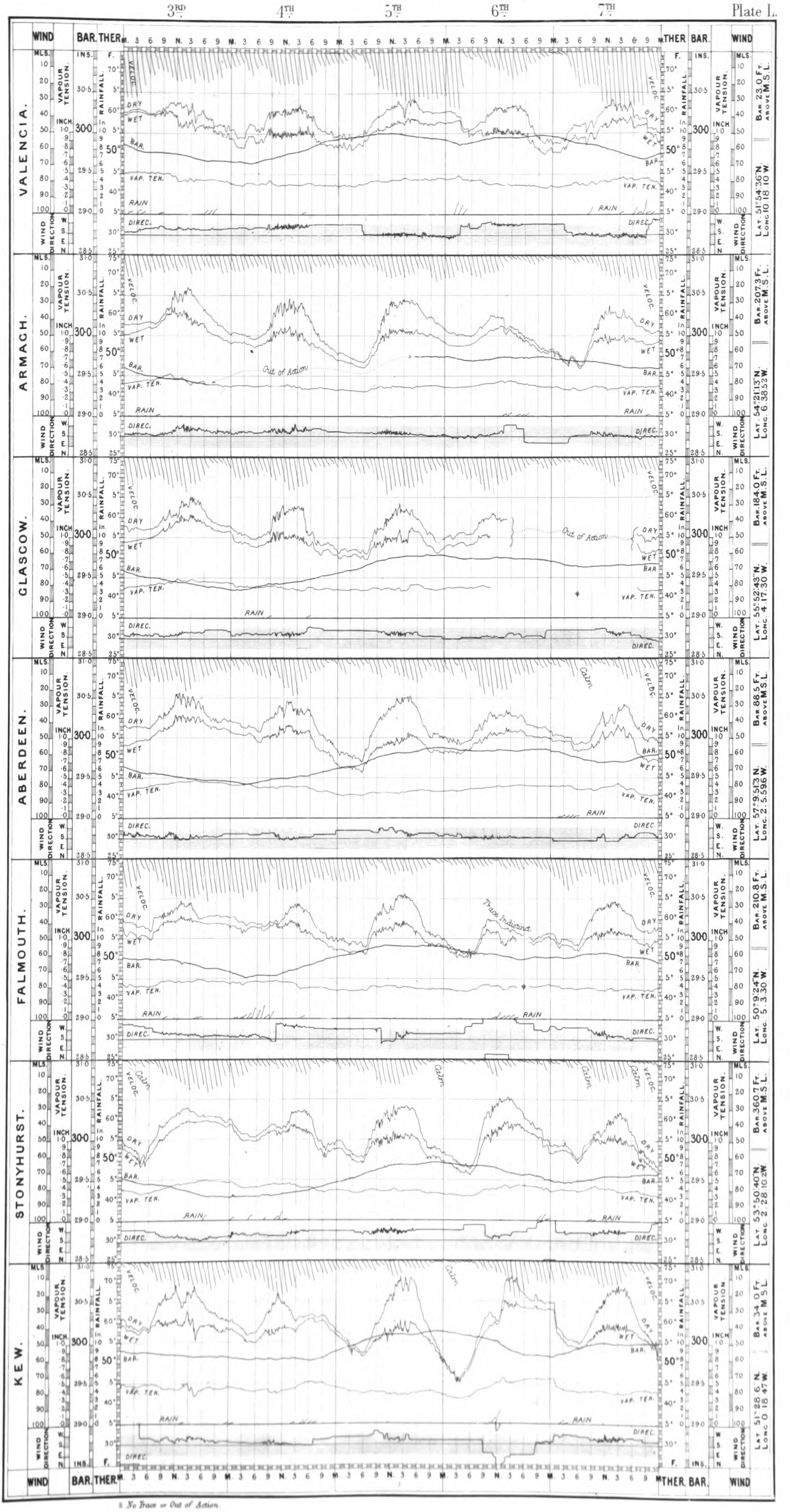


No Trace or Out of Action.

SEPTEMBER, 1871.

3RD 4TH 5TH 6TH 7TH

Plate I.



‖ No Trace or Out of Action.

SEPTEMBER.—1871.

8TH 9TH 10TH 11TH 12TH

Plate II.

VALENCIA.

Bar. 23.0 Ft. above M.S.L.
Lat. 51° 54′ 36″ N.
Long. 10° 18′ 10″ W.

ARMAGH.

Bar. 207.3 Ft. above M.S.L.
Lat. 54° 21′ 13″ N.
Long. 6° 38′ 52″ W.

GLASCOW.

Bar. 184.0 Ft. above M.S.L.
Lat. 55° 52′ 43″ N.
Long. 4° 17′ 30″ W.

ABERDEEN.

Bar. 88.5 Ft. above M.S.L.
Lat. 57° 9′ 51″ N.
Long. 2° 5′ 59″ W.

FALMOUTH.

Bar. 210.8 Ft. above M.S.L.
Lat. 50° 9′ 24″ N.
Long. 5° 3′ 30″ W.

STONYHURST.

Bar. 360.7 Ft. above M.S.L.
Lat. 53° 50′ 40″ N.
Long. 2° 28′ 10″ W.

KEW.

Bar. 34.0 Ft. above M.S.L.
Lat. 51° 28′ 6″ N.
Long. 0° 18′ 47″ W.

FIG. 35

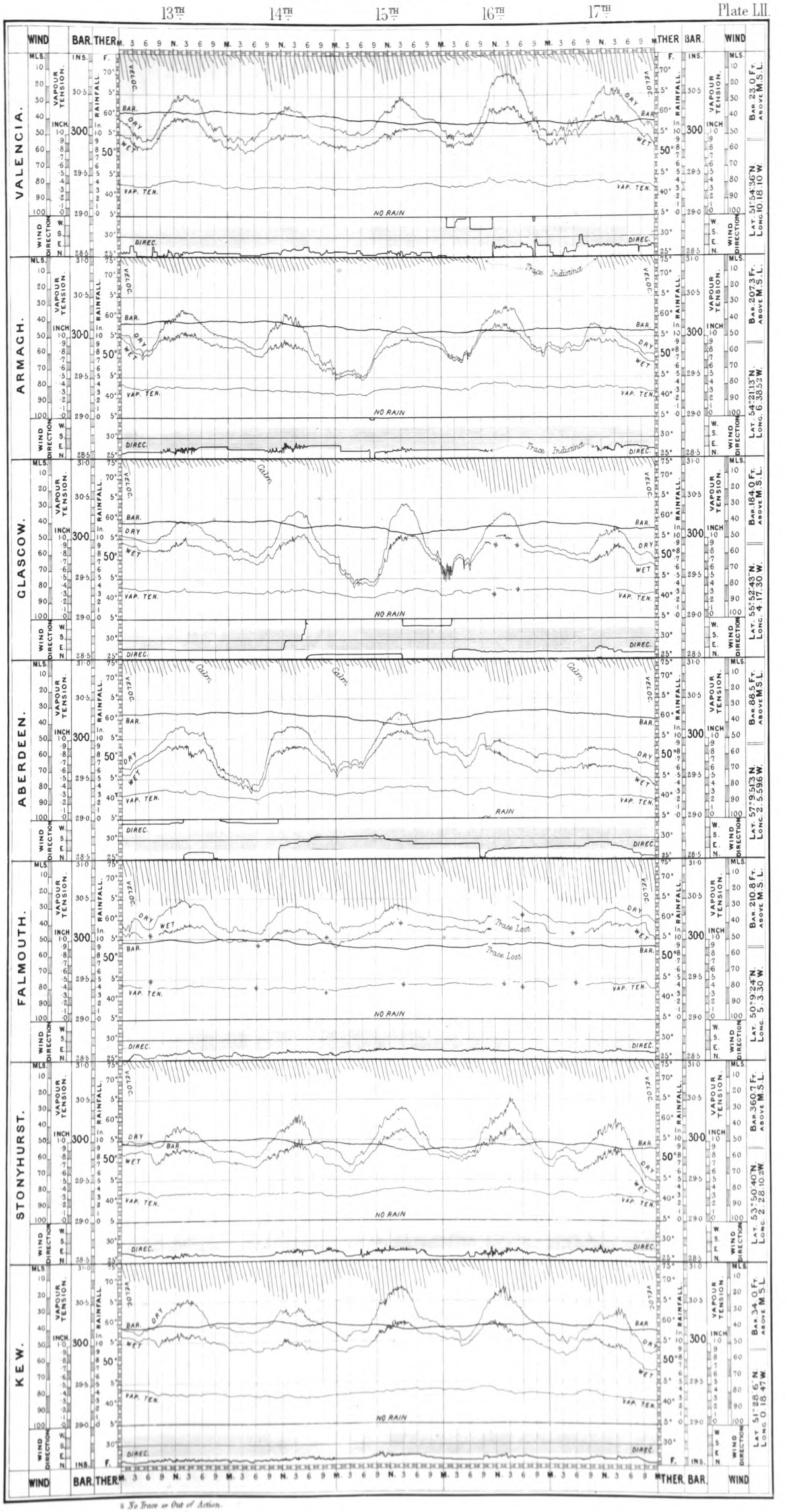
Sept. 10th 8 a.m.

* No Trace or Out of Action.

SEPTEMBER, 1871.

Plate LII.

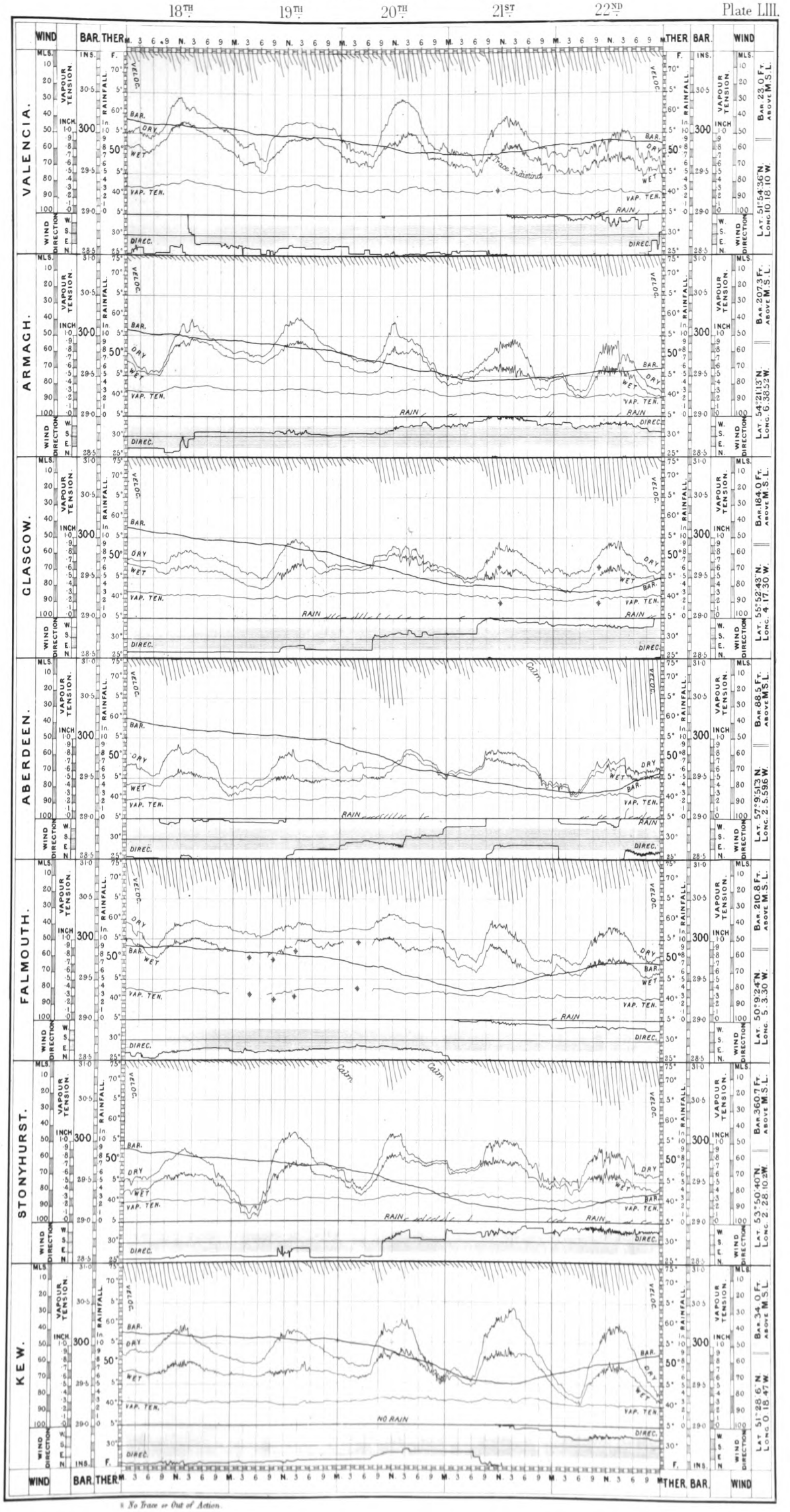
13TH 14TH 15TH 16TH 17TH



* No Trace or Out of Action.

SEPTEMBER, 1871.

18TH. 19TH. 20TH. 21ST. 22ND. Plate LIII.



* No Trace or Out of Action.

SEPTEMBER, 1871.

Plate LIV.

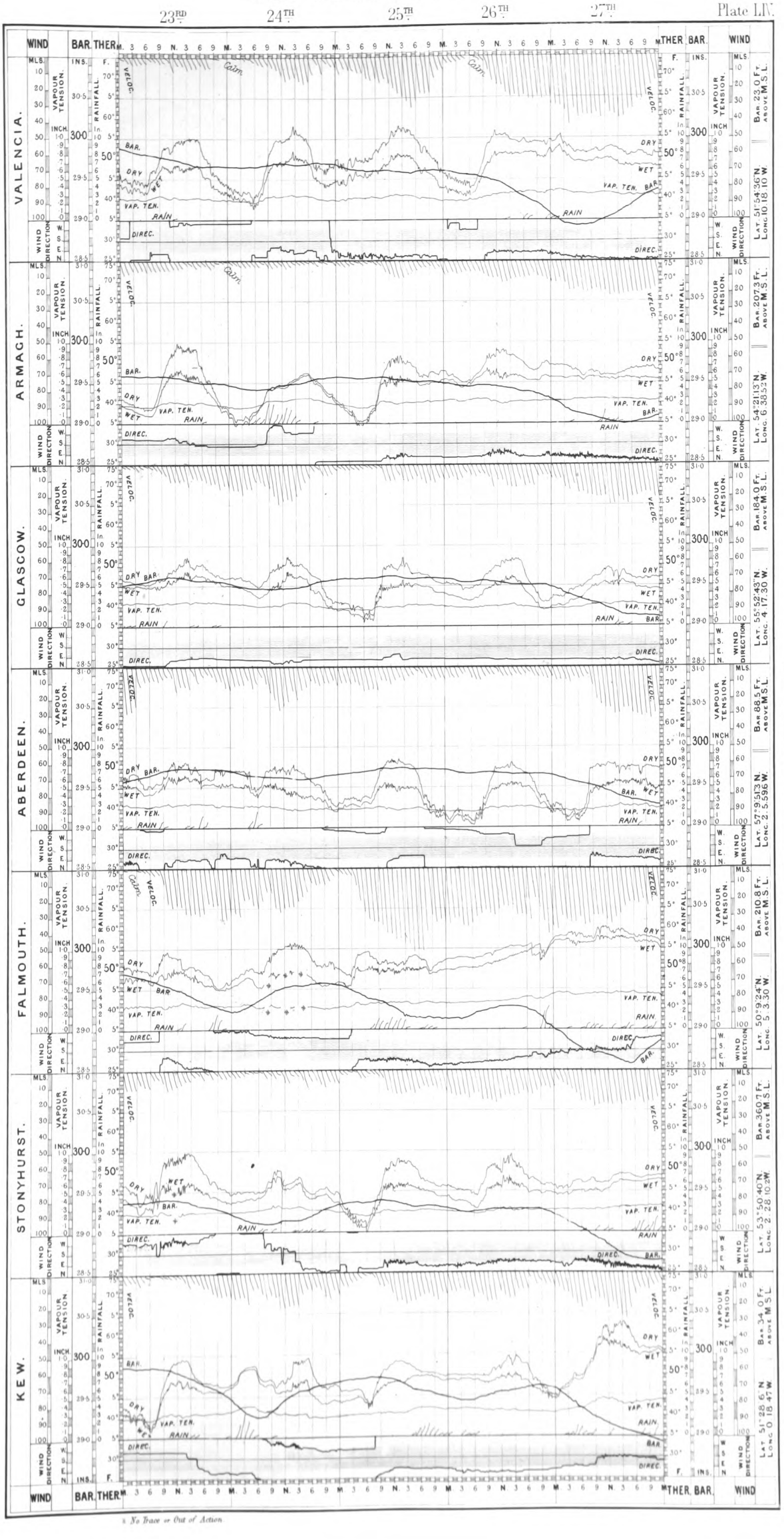
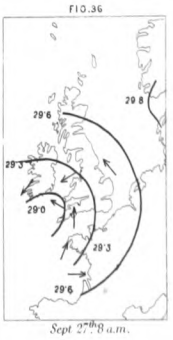


FIG. 36



Sept 27th 8 a.m.

* No Trace or Out of Action.

SEPTEMBER – OCTOBER 1871

28TH 29TH 30TH 1ST 2ND

Plate IV

VALENCIA.

ARMAGH.

GLASCOW.

ABERDEEN.

FALMOUTH.

STONYHURST.

KEW.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

MLS. VAPOUR TENSION INS. F. RAINFALL. IN. WIND DIRECTION

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Calm. Clock Stopped. Trace Lost.

VALENCIA. Bar. 23.0 Fr. above M.S.L. Lat. 51°54'36" N. Long. 10.18.10 W.

ARMAGH. Bar. 207.3 Fr. above M.S.L. Lat. 54°21'13" N. Long. 6.38.52 W.

GLASCOW. Bar. 184.0 Fr. above M.S.L. Lat. 55°52'43" N. Long. 4.17.30 W.

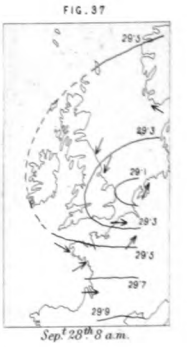
ABERDEEN. Bar. 88.5 Fr. above M.S.L. Lat. 57°9.51'3 N. Long. 2.5.59 W.

FALMOUTH. Bar. 210.8 Fr. above M.S.L. Lat. 50°9.24" N. Long. 5.3.30 W.

STONYHURST. Bar. 360.7 Fr. above M.S.L. Lat. 53°50'40" N. Long. 2.28.10 W.

KEW. Bar. 34.0 Fr. above M.S.L. Lat. 51°28.6" N. Long. 0.18.47 W.

FIG. 37

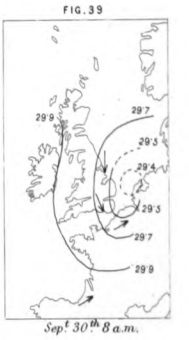


Sept.t 28th 8 a.m.

FIG. 38

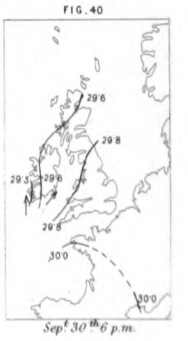
Sept.t 29th 6 p.m.

FIG. 39



Sept.t 30th 8 a.m.

FIG. 40

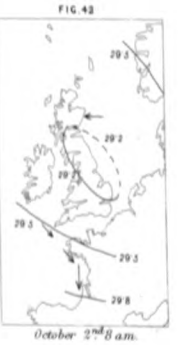


Sept.t 30th 6 p.m.

FIG. 41

October 1st 8 a.m.

FIG. 42



October 2nd 8 a.m.

* No Trace or Out of Action.

OCTOBER, — 1871.

Plate LVI.

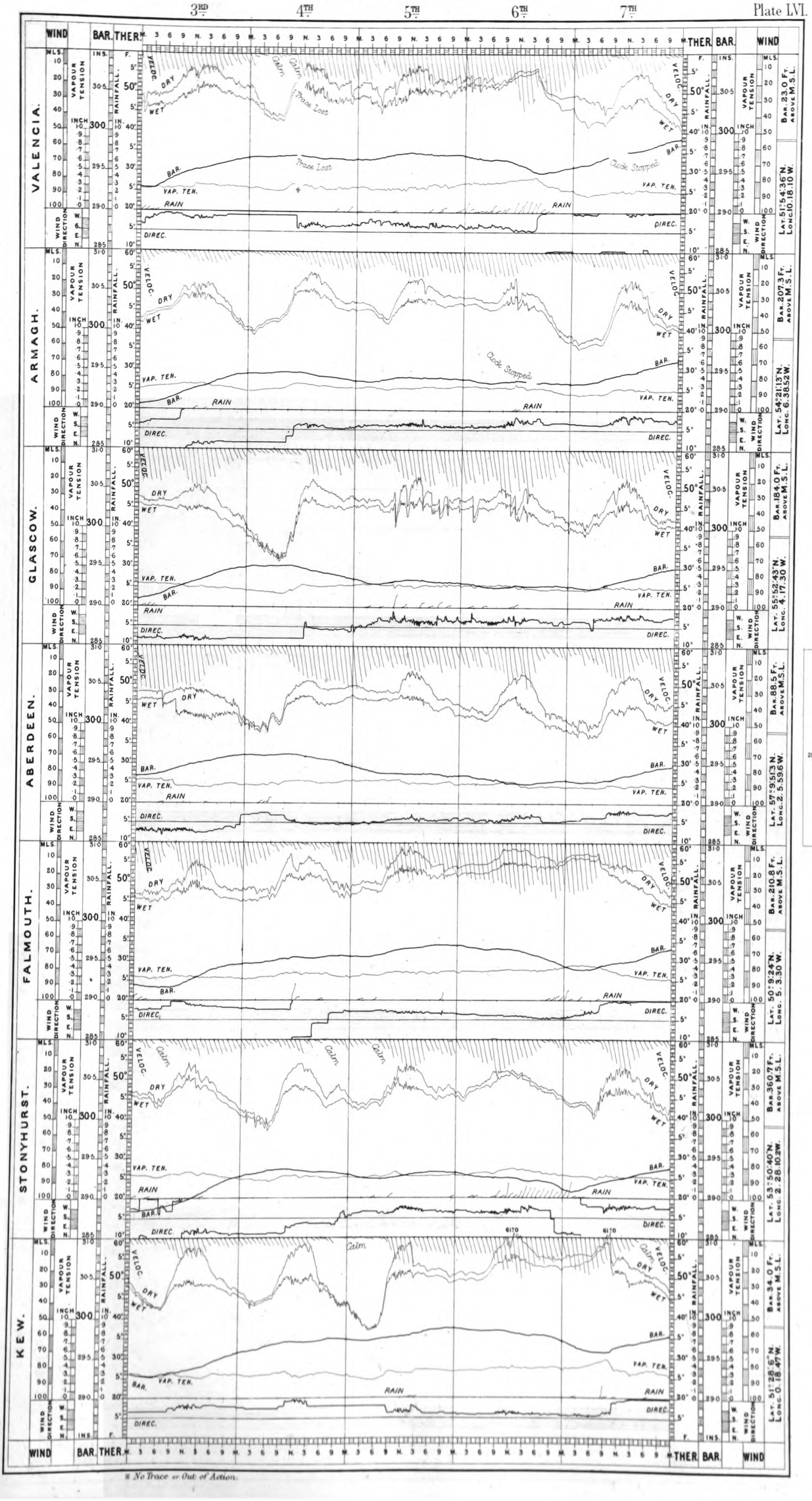
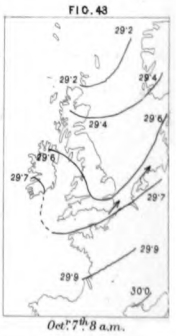


FIG. 43



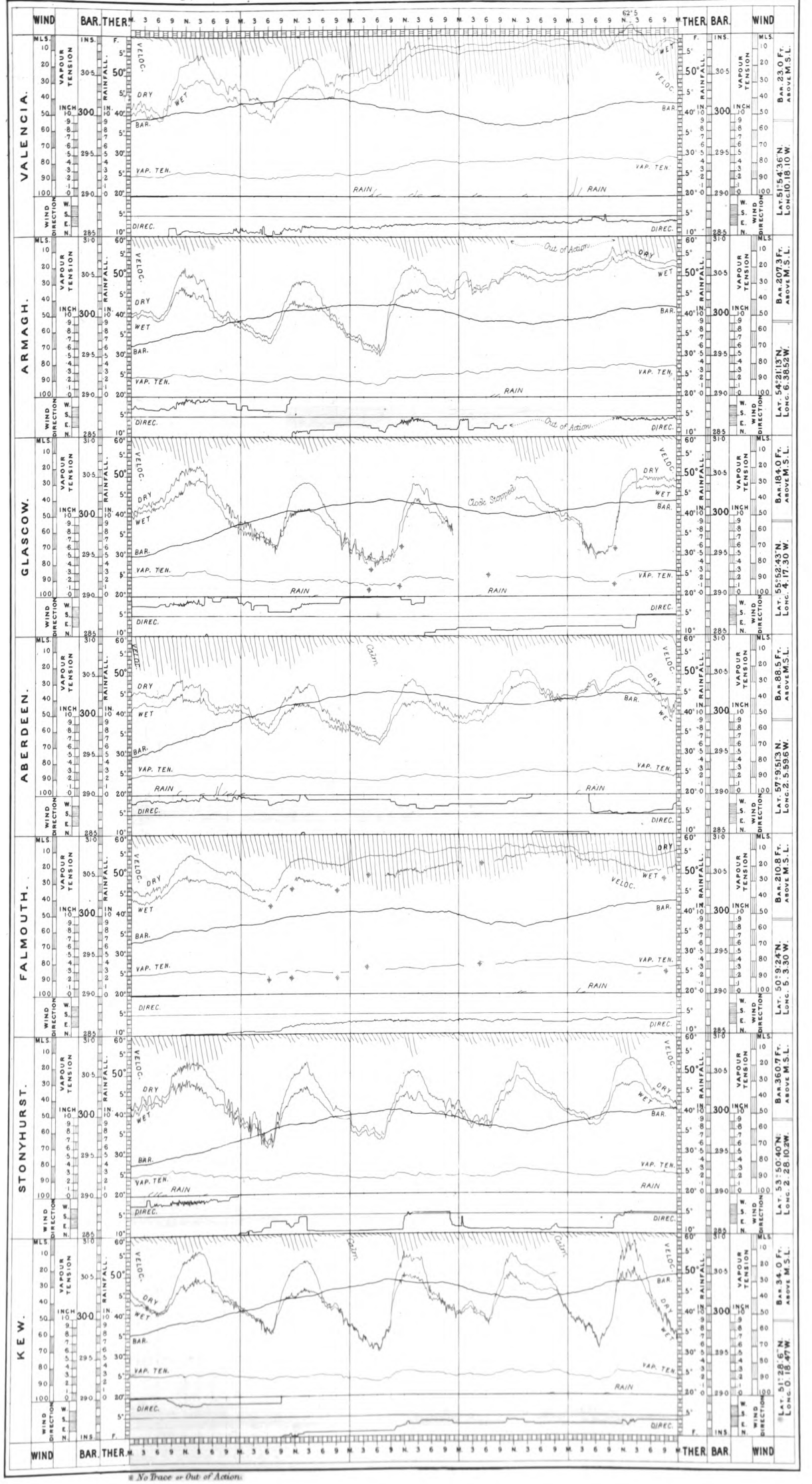
Oct.r 7th 8 a.m.

* No Trace or Out of Action.

OCTOBER — 1871

8TH 9TH 10TH 11TH 12TH

Plate LVII.

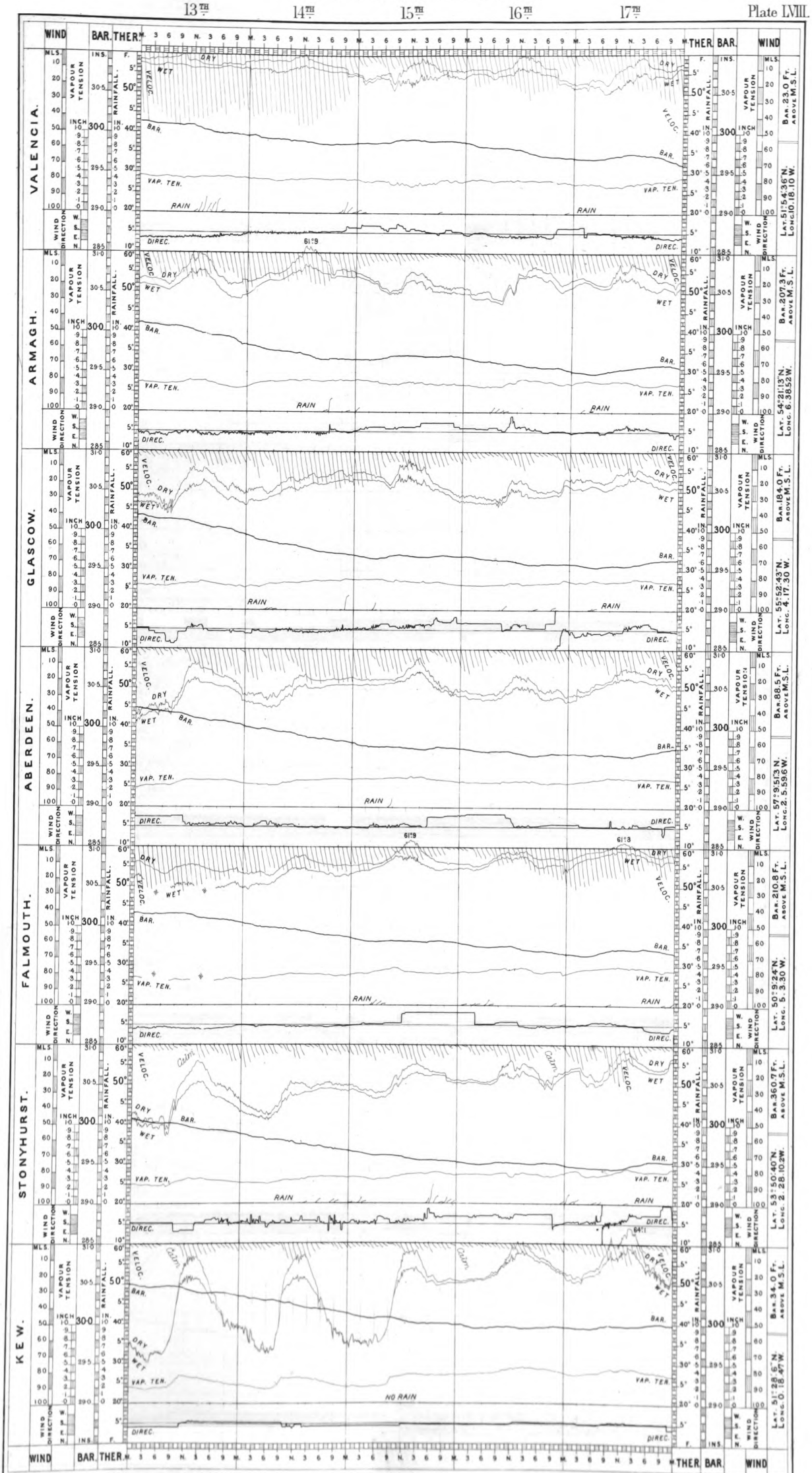


* No Trace or Out of Action.

OCTOBER, — 1871.

13TH 14TH 15TH 16TH 17TH

Plate LVIII.

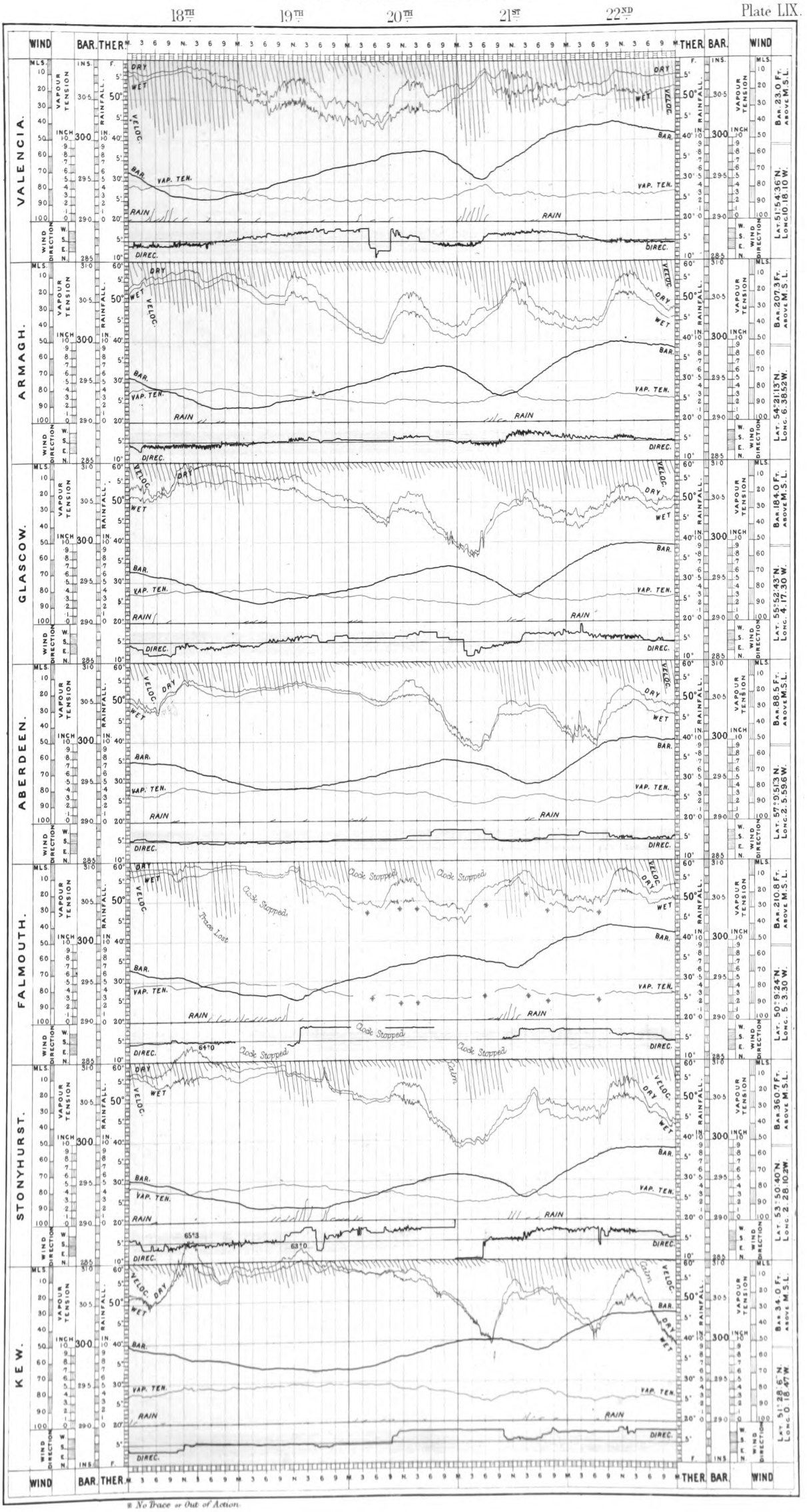


* No Trace or Out of Action.

OCTOBER — 1871.

18TH 19TH 20TH 21ST 22ND

Plate LIX.



* No Trace or Out of Action.

OCTOBER. — 1871

Plate IX.

23RD | 24TH | 25TH | 26TH | 27TH

WIND | BAR. | THER. M 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. | THER. | BAR. | WIND

VALENCIA.

MLS. | VAPOUR TENSION INCH | INS. | F. | RAINFALL IN. | WIND DIRECTION

DRY VELOC. WET BAR. VAP. TEN. RAIN DIREC.

Bar. 23.0 Fr. Above M.S.L.

Lat. 51° 54' 36" N. Long. 10. 18. 10 W.

ARMAGH.

DRY VELOC. WET BAR. Clock Stopped. VAP. TEN. RAIN DIREC.

Bar. 207.3 Fr. Above M.S.L.

Lat. 54° 21' 13" N. Long. 6. 38. 52 W.

GLASCOW.

DRY VELOC. WET BAR. Clock Stopped. VAP. TEN. RAIN DIREC.

Bar. 184.0 Fr. Above M.S.L.

Lat. 55° 52' 43" N. Long. 4. 17. 30 W.

ABERDEEN.

DRY VELOC. WET BAR. VAP. TEN. RAIN RAIN DIREC.

Bar. 88.5 Fr. Above M.S.L.

Lat. 57° 9' 51" N. Long. 2. 5. 59 W.

FALMOUTH.

DRY VELOC. WET BAR. VAP. TEN. RAIN RAIN DIREC.

Bar. 210.8 Fr. Above M.S.L.

Lat. 50° 9' 24" N. Long. 5. 3. 30 W.

STONYHURST.

Calm Calm DRY VELOC. WET BAR. Clock Stopped. VAP. TEN. RAIN DIREC.

Bar. 360.7 Fr. Above M.S.L.

Lat. 53° 50' 40" N. Long. 2. 28. 10 W.

KEW.

Calm Calm Calm Calm DRY VELOC. WET BAR. VAP. TEN. NO RAIN DIREC.

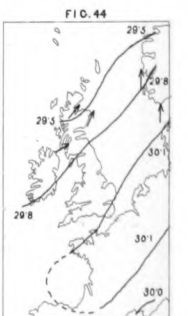
Bar. 34.0 Fr. Above M.S.L.

Lat. 51° 28' 6" N. Long. 0. 18. 47 W.

WIND | BAR. | THER. M 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. | THER. | BAR. | WIND

* No Trace or Out of Action.

FIG. 44



Oct.27th 8 a.m.

OCTOBER & NOVEMBER, 1871.

28TH 29TH 30TH 31ST 1ST

Plate LXI.

WIND BAR. THER. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. IN RAINFALL. VAPOUR TENSION INCH WIND DIRECTION N. E. S. W.

Bar. 23.0 Ft. above M.S.L.

Lat. 51° 54' 36" N. Long. 10. 18. 10 W.

ARMAGH.

MLS. INS. F. VELOC. DRY WET BAR. No Trace VAP. TEN. RAIN DIREC. IN RAINFALL. VAPOUR TENSION INCH WIND DIRECTION N. E. S. W.

Bar. 207.3 Fr. above M.S.L.

Lat. 54° 21' 13" N. Long. 6. 38. 52 W.

GLASCOW.

MLS. INS. F. VELOC. DRY WET Clock Stopped BAR. VAP. TEN. RAIN DIREC. IN RAINFALL. VAPOUR TENSION INCH WIND DIRECTION N. E. S. W.

Bar. 184.0 Fr. above M.S.L.

Lat. 55° 52' 43" N. Long. 4. 17. 30 W.

ABERDEEN.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. IN RAINFALL. VAPOUR TENSION INCH WIND DIRECTION N. E. S. W.

Bar. 88.5 Fr. above M.S.L.

Lat. 57° 9' 51" N. Long. 2. 5. 59 W.

FALMOUTH.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. IN RAINFALL. VAPOUR TENSION INCH WIND DIRECTION N. E. S. W.

Bar. 210.8 Fr. above M.S.L.

Lat. 50° 9' 24" N. Long. 5. 3. 30 W.

STONYHURST.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. IN RAINFALL. VAPOUR TENSION INCH WIND DIRECTION N. E. S. W.

Bar. 360.7 Fr. above M.S.L.

Lat. 53° 50' 40" N. Long. 2. 28. 10 W.

KEW.

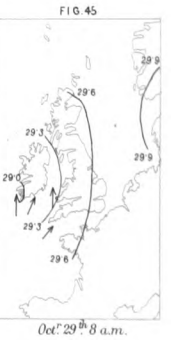
MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. IN RAINFALL. VAPOUR TENSION INCH WIND DIRECTION N. E. S. W.

Bar. 34.0 Ft. above M.S.L.

Lat. 51° 28' 6" N. Long. 0. 18. 47 W.

WIND BAR. THER. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

FIG. 45



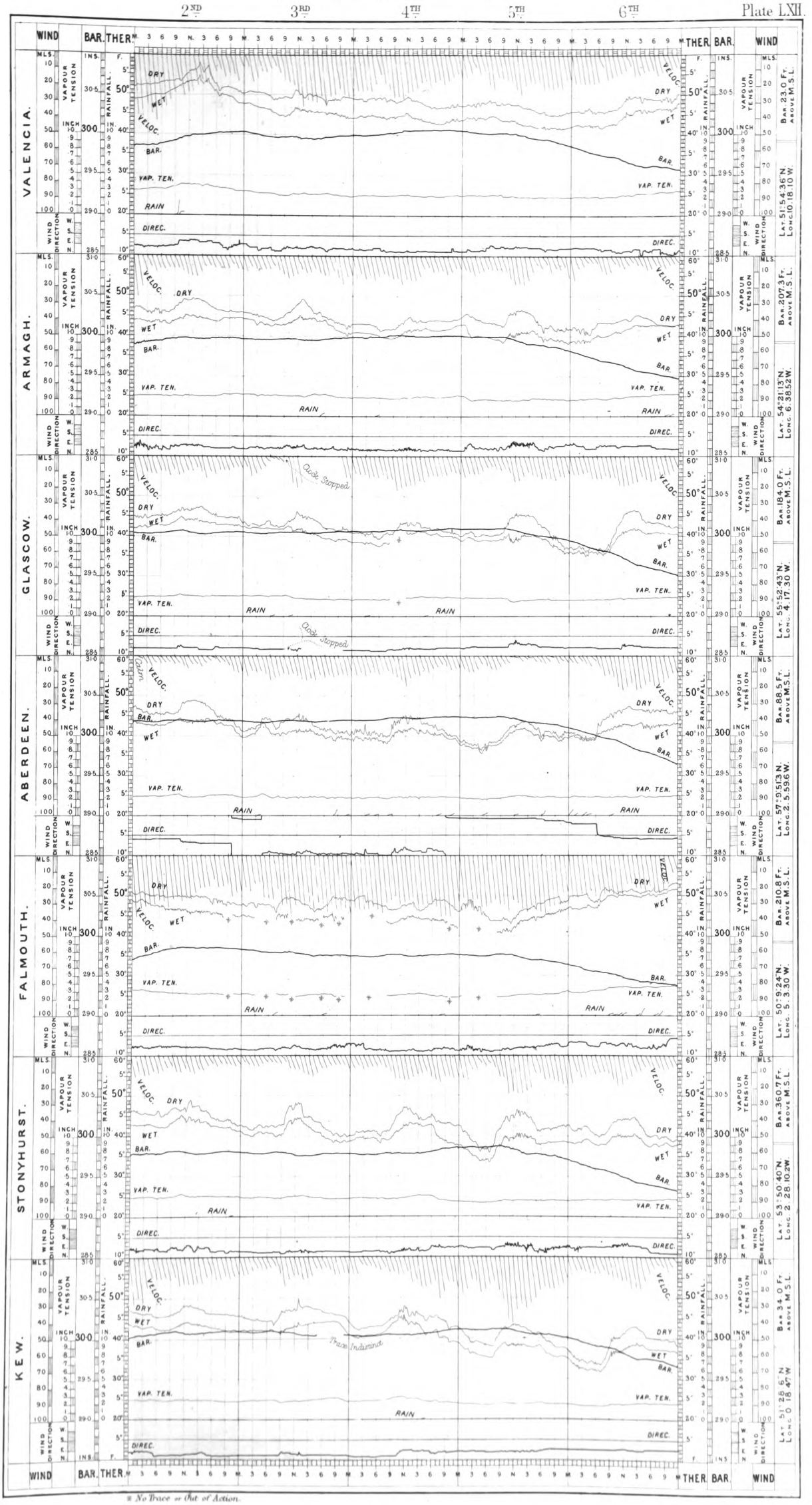
Oct.r 29th 8 a.m.

* No Trace or Out of Action.

NOVEMBER 1871

2ND 3RD 4TH 5TH 6TH

Plate LXII.



* No Trace or Out of Action.

NOVEMBER, 1871

Plate LXIII.

7TH 8TH 9TH 10TH 11TH

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

VALENCIA.

MLS. VAPOUR TENSION INCH INS. F. RAINFALL IN WIND DIRECTION

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 23.0 Fr. above M.S.L.

Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH.

VELOC. DRY WET BAR. VAP. TEN. NO RAIN DIREC.

Bar. 207.3 Fr. above M.S.L.

Lat. 54°21'13"N. Long. 6.38.52 W.

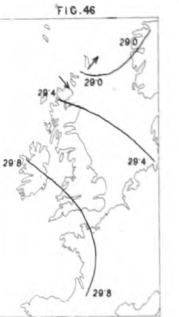
GLASCOW.

Calm. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Clock Stopped.

Bar. 184.0 Fr. above M.S.L.

Lat. 55°52'43"N. Long. 4.17.30 W.

FIG. 46



Nov. 9th 8 a.m.

ABERDEEN.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Trace Indistinct. Trace Indistinct.

Bar. 88.5 Fr. above M.S.L.

Lat. 57°9'51"N. Long. 2.5'596 W.

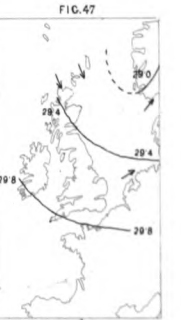
FALMOUTH.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. Trace Indistinct.

Bar. 210.8 Fr. above M.S.L.

Lat. 50°9'24"N. Long. 5.3.30 W.

FIG. 47



Nov. 10th 8 a.m.

STONYHURST.

VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC.

Bar. 360.7 Fr. above M.S.L.

Lat. 53°50'40"N. Long. 2.28.10 W.

KEW.

Calm. VELOC. DRY WET Out of Action. BAR. VAP. TEN. RAIN DIREC.

Bar. 34.0 Fr. above M.S.L.

Lat. 51°28'6"N. Long. 0.18.47 W.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

* No Trace or Out of Action.

NOVEMBER — 1871.

12TH 13TH 14TH 15TH 16TH

Plate LXIV.

WIND BAR. THER. M 3 6 9 N 3 6 9 M 3 6 9 N. 3 6 9 M 3 6 9 N. 3 6 9 M 3 6 9 N. 3 6 9 M 3 6 9 N. 3 6 9 M THER. BAR. WIND

VALENCIA.

MLS. VAPOUR TENSION INS. RAINFALL. F. VELOC. DRY BAR. WET VAP. TEN. RAIN DIREC. WIND DIRECTION W. S. E. N.

Bar. 23.0 Fr. above M.S.L.

Lat. 51° 54' 36" N. Long. 10. 18. 10 W.

ARMAGH.

Bar. 207.3 Fr. above M.S.L.

Lat. 54° 21' 13" N. Long. 6. 38. 52 W.

GLASCOW.

Close Stopped. Close Stopped. Trace Intistind.

Bar. 184.0 Fr. above M.S.L.

Lat. 55° 52' 43" N. Long. 4. 17. 30 W.

ABERDEEN.

Trace Lost.

Bar. 88.5 Fr. above M.S.L.

Lat. 57° 9' 51" N. Long. 2. 5. 56 W.

FALMOUTH.

Bar. 210.8 Fr. above M.S.L.

Lat. 50° 9' 24" N. Long. 5. 3. 30 W.

STONYHURST.

Bar. 360.7 Fr. above M.S.L.

Lat. 53° 50' 40" N. Long. 2. 28. 10 W.

KEW.

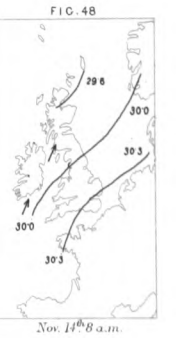
Trace Lost. No Trace

Bar. 34.0 Fr. above M.S.L.

Lat. 51° 28' 6" N. Long. 0. 18. 47 W.

WIND BAR. THER. M 3 6 9 N 3 6 9 M 3 6 9 N. 3 6 9 M 3 6 9 N. 3 6 9 M 3 6 9 N. 3 6 9 M 3 6 9 N. 3 6 9 M THER. BAR. WIND

FIG. 48



Nov. 14th 8 a.m.

* No Trace or Out of Action.

NOVEMBER — 1871

17TH 18TH 19TH 20TH 21ST

Plate LXV.

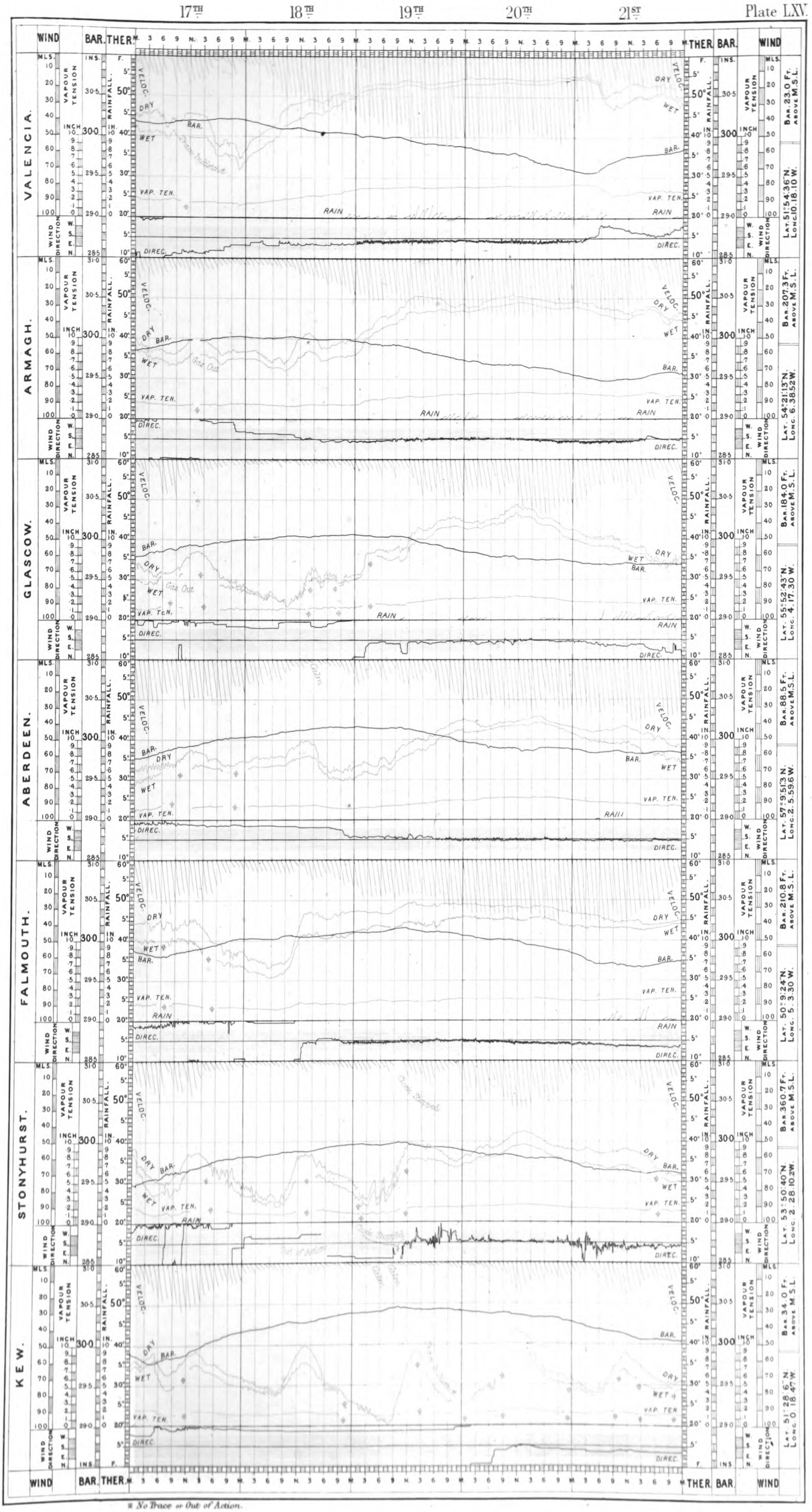
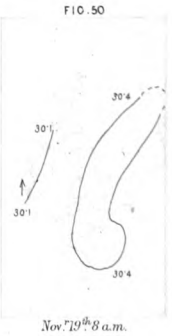


FIG. 49

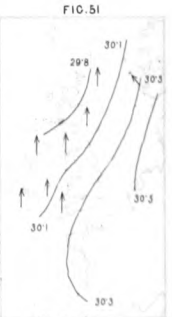
Nov.r 17th 8 a.m.

FIG. 50



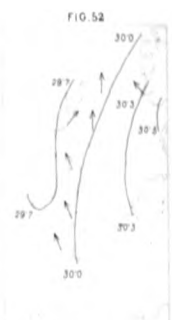
Nov.r 19th 8 a.m.

FIG. 51



Nov.r 20th 8 a.m.

FIG. 52



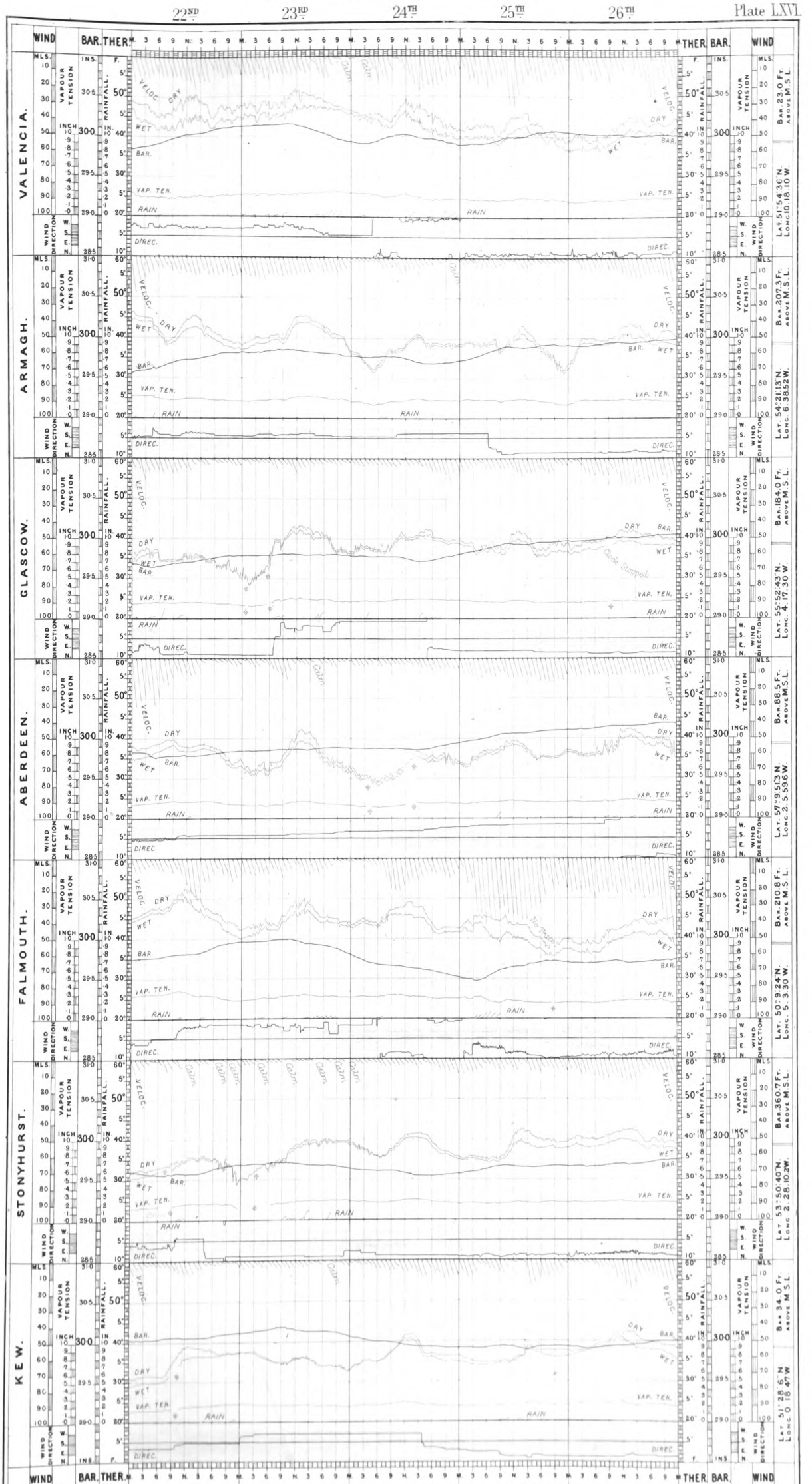
Nov.r 21st 8 a.m.

* No Trace or Out of Action.

NOVEMBER — 1871

22ND 23RD 24TH 25TH 26TH

Plate LXVI.



* No Trace or Out of Action.

NOVEMBER & DECEMBER, — 1871.

Plate LXVII.

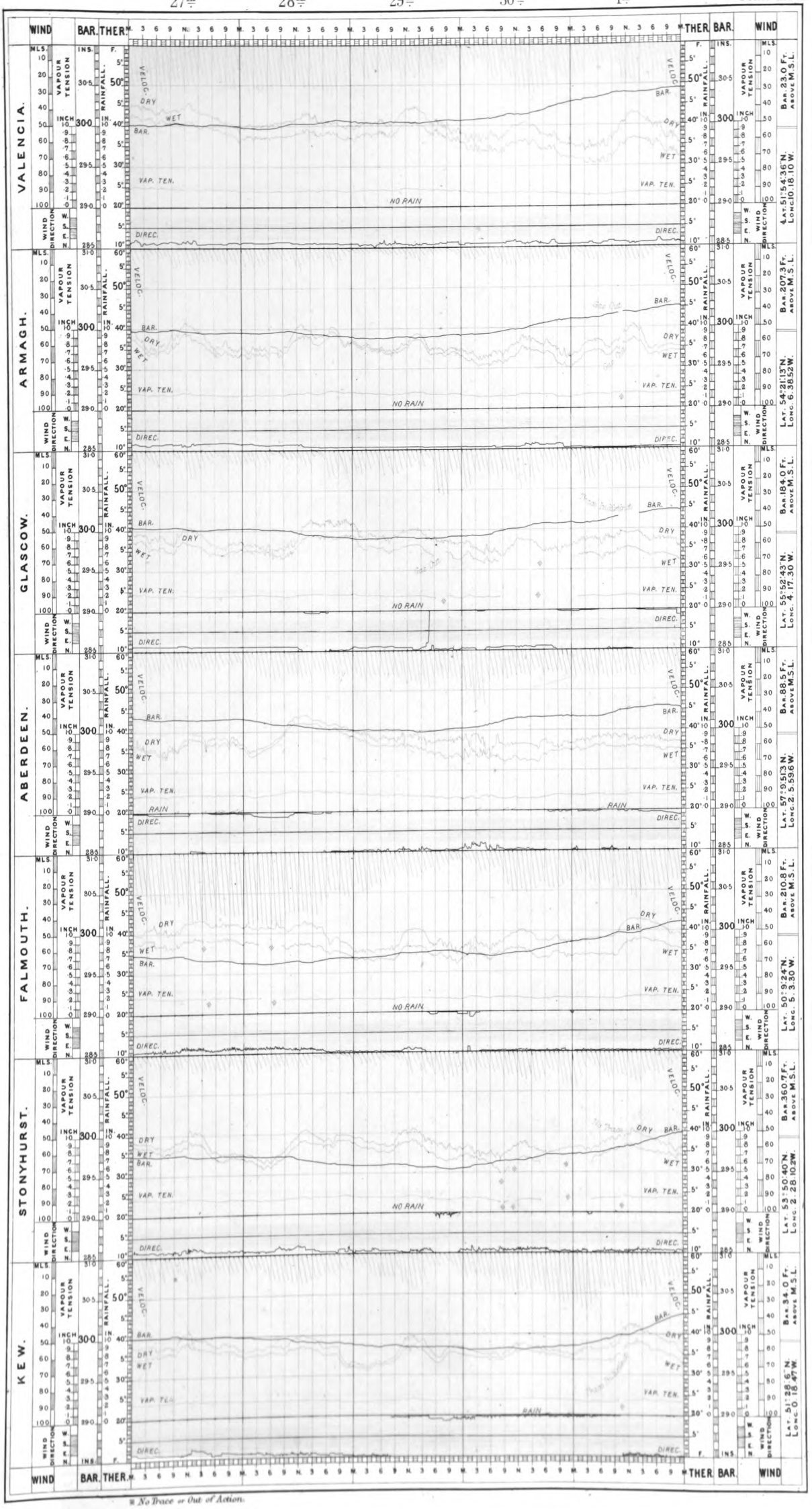
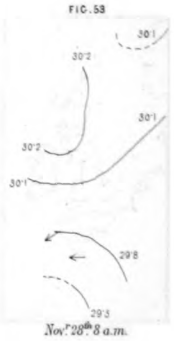


FIG. 53

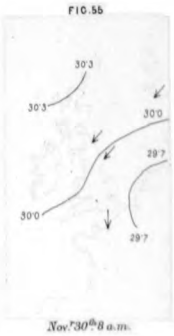


Nov.r 28th 8 a.m.

FIG. 54

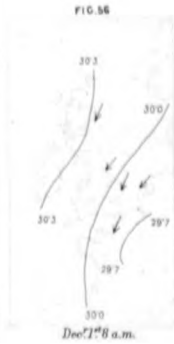
Nov.r 29th 8 a.m.

FIG. 55



Nov.r 30th 8 a.m.

FIG. 56



Dec.r 1st 8 a.m.

* No Trace or Out of Action.

DECEMBER — 1871

Plate LXVIII.

2ND 3RD 4TH 5TH 6TH

VALENCIA.

Bar. 23.0 Fr. above M.S.L.
Lat. 51°54'36"N. Long. 10.18.10 W.

ARMAGH.

Bar. 209.3 Fr. above M.S.L.
Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW.

Bar. 184.0 Fr. above M.S.L.
Lat. 55°52'43"N. Long. 4.17.30 W.

ABERDEEN.

Bar. 88.5 Fr. above M.S.L.
Lat. 57°9.51'3 N. Long. 2.5.59.6 W.

FALMOUTH.

Bar. 210.8 Fr. above M.S.L.
Lat. 50°9.24"N. Long. 5.3.30 W.

STONYHURST.

Bar. 360.7 Fr. above M.S.L.
Lat. 53°50.40"N. Long. 2.28.10.2 W.

KEW.

Bar. 34.0 Fr. above M.S.L.
Lat. 51°28.6"N. Long. 0.18.4"W.

FIG. 57

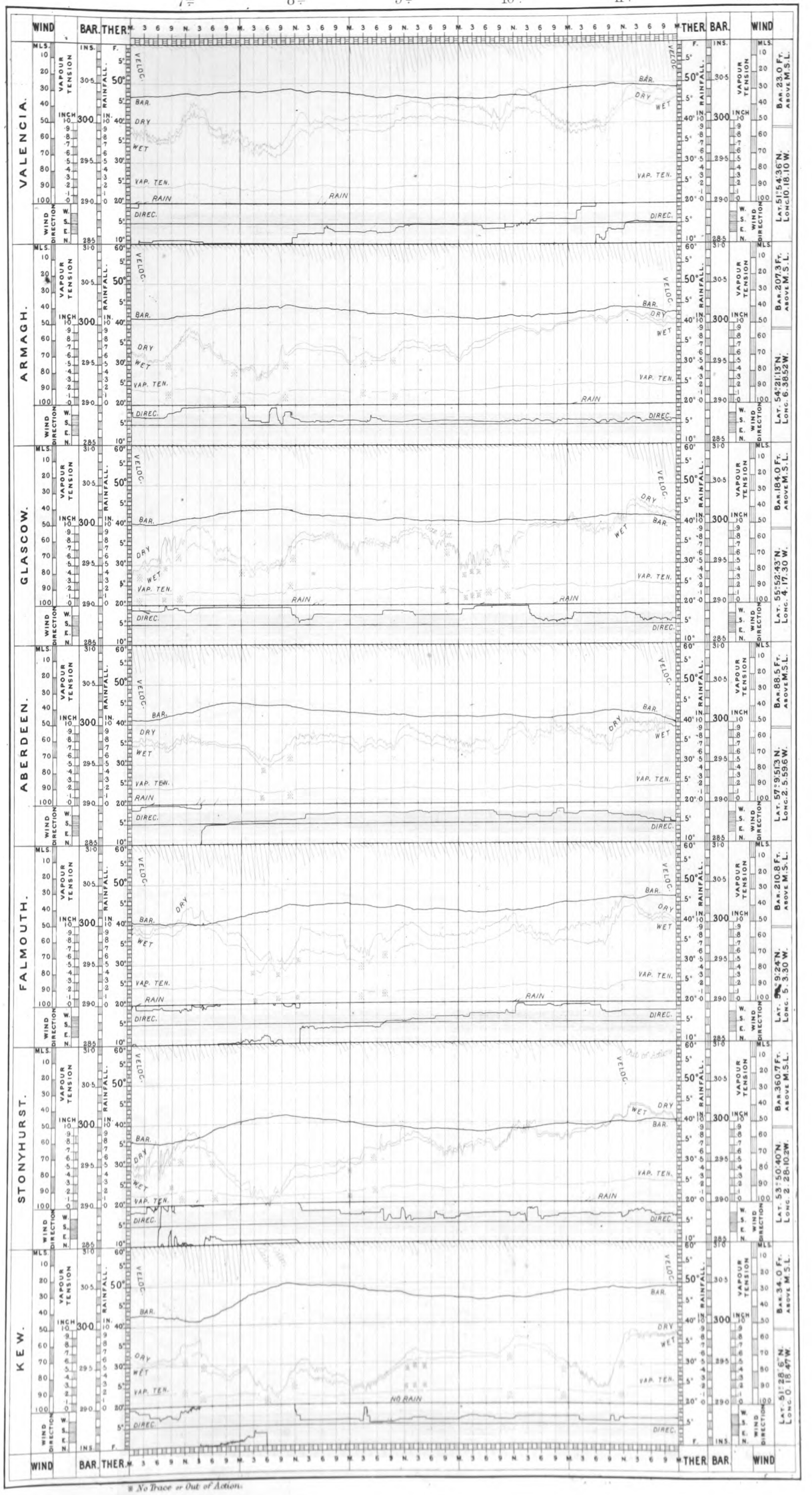
Dec.r 4th 8 a.m.

* No Trace or Out of Action.

DECEMBER — 1871

7TH 8TH 9TH 10TH 11TH

Plate LXIX

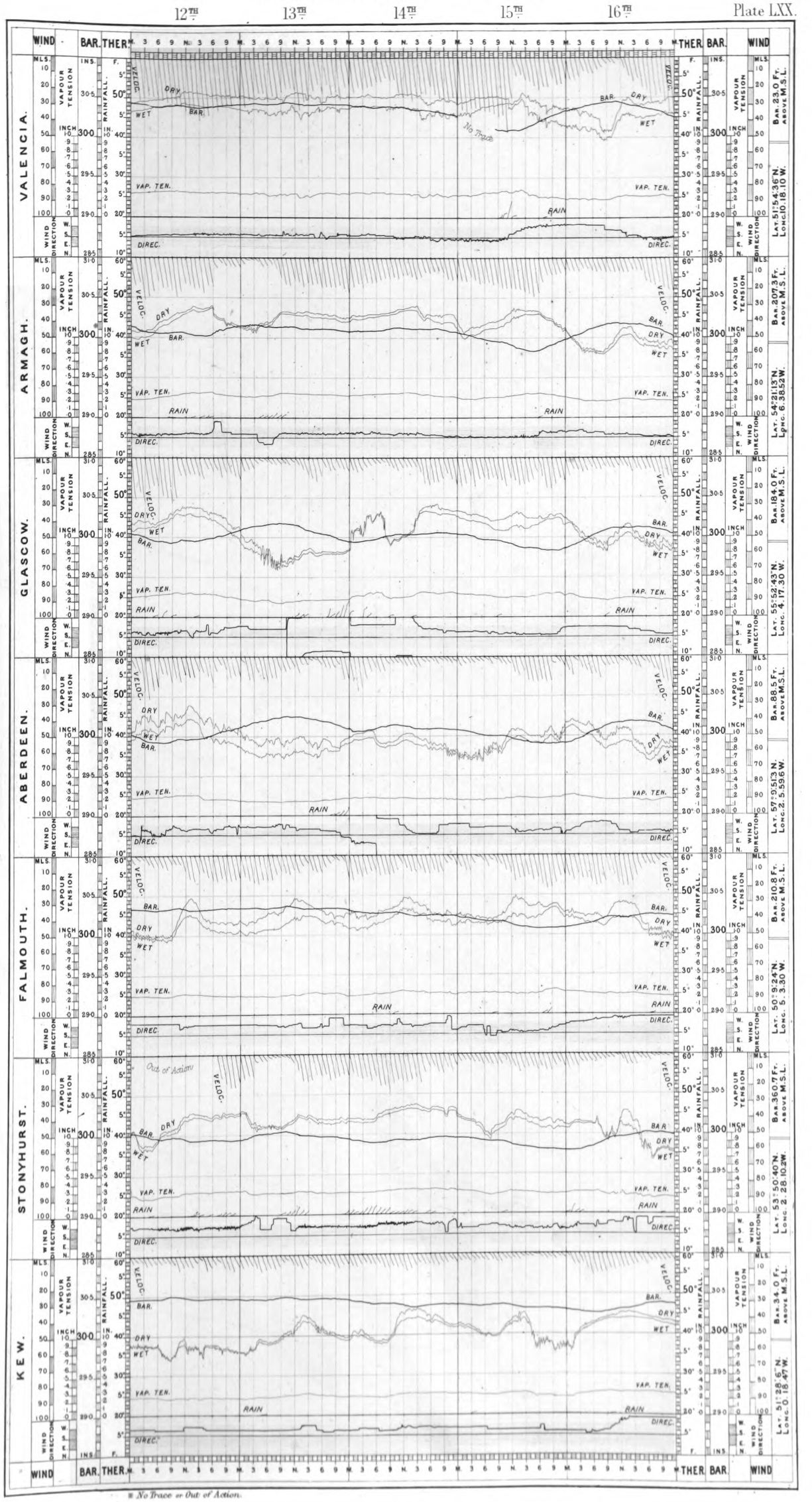


* No Trace or Out of Action.

DECEMBER — 1871.

Plate LXX.

12TH 13TH 14TH 15TH 16TH



* No Trace or Out of Action.

DECEMBER — 1871

17TH 18TH 19TH 20TH 21ST

Plate LXXI.

WIND BAR. THER. M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. 3 6 9 N. 3 6 9 M. THER. BAR. WIND

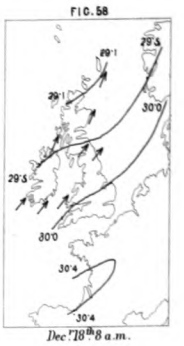
VALENCIA.

MLS. INS. F. VELOC. DRY WET BAR. VAP. TEN. RAIN DIREC. IN RAINFALL. VAPOUR TENSION INCH WIND DIRECTION W. S. E. N.

Bar. 23.0 Fr. above M.S.L.

Lat. 51°54'36"N. Long. 10.18.10 W.

FIG. 58



Dec.r 19th 8 a.m.

ARMAGH.

Bar. 207.3 Fr. above M.S.L.

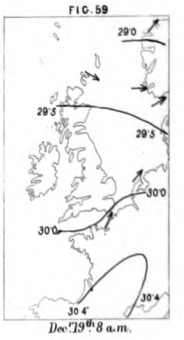
Lat. 54°21'13"N. Long. 6.38.52 W.

GLASCOW.

Bar. 184.0 Fr. above M.S.L.

Lat. 55°52'43"N. Long. 4.17.30 W.

FIG. 59



Dec.r 19th 8 a.m.

ABERDEEN.

Bar. 88.5 Fr. above M.S.L.

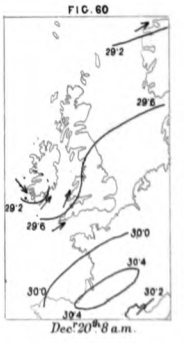
Lat. 57°9'51"N. Long. 2.5.59 W.

FALMOUTH.

Bar. 210.8 Fr. above M.S.L.

Lat. 50°9'34"N. Long. 5.3.30 W.

FIG. 60



Dec.r 20th 8 a.m.

STONYHURST.

Bar. 360.7 Fr. above M.S.L.

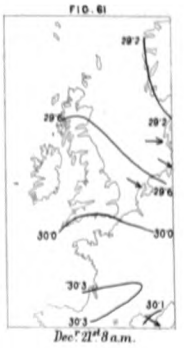
Lat. 53°50'40"N. Long. 2.28.10.2 W.

KEW.

Bar. 34.0 Fr. above M.S.L.

Lat. 51°28'6"N. Long. 0.18.47 W.

FIG. 61



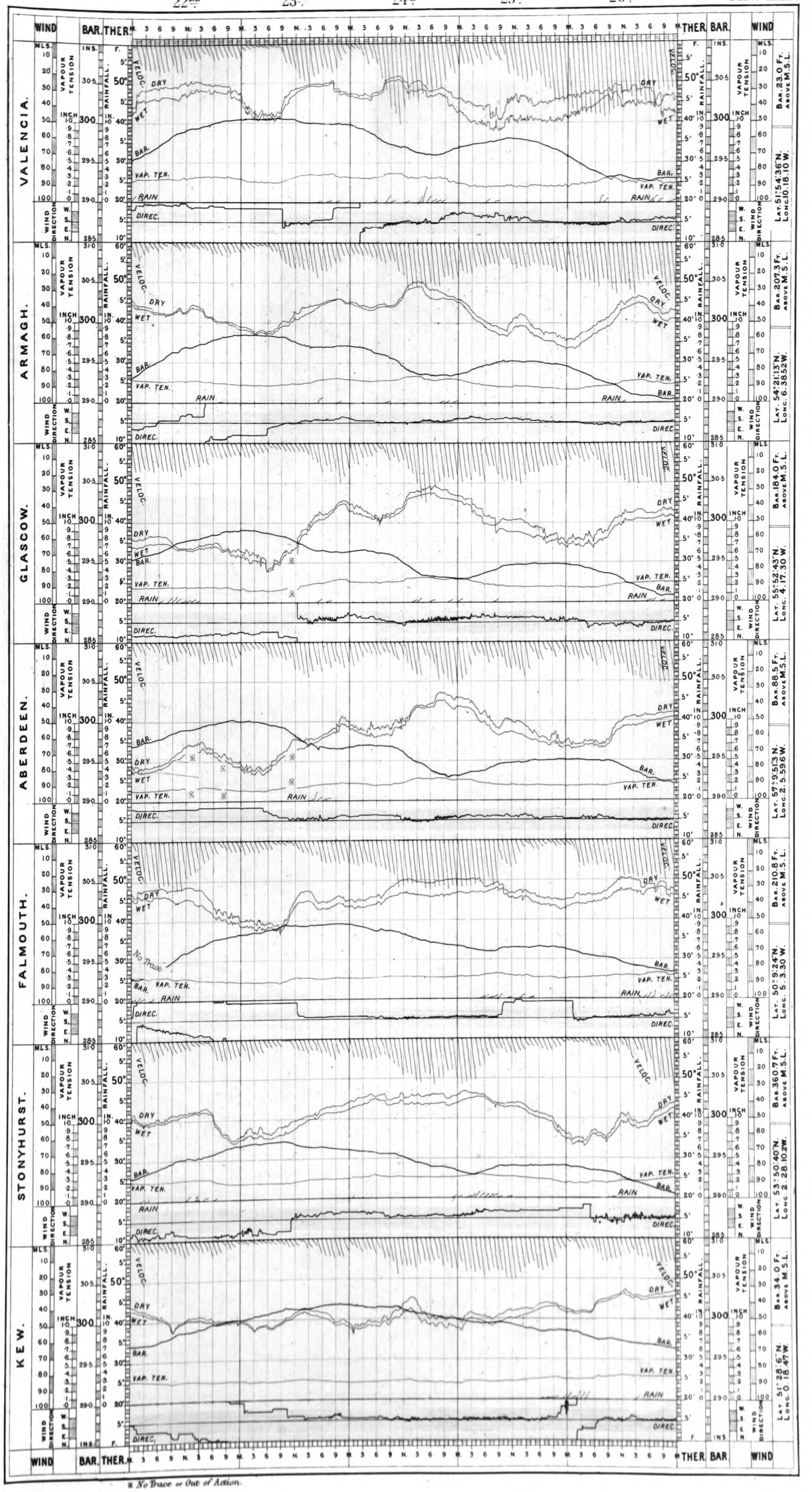
Dec.r 21st 8 a.m.

* No Trace or Out of Action.

DECEMBER — 1871

22ND 23RD 24TH 25TH 26TH

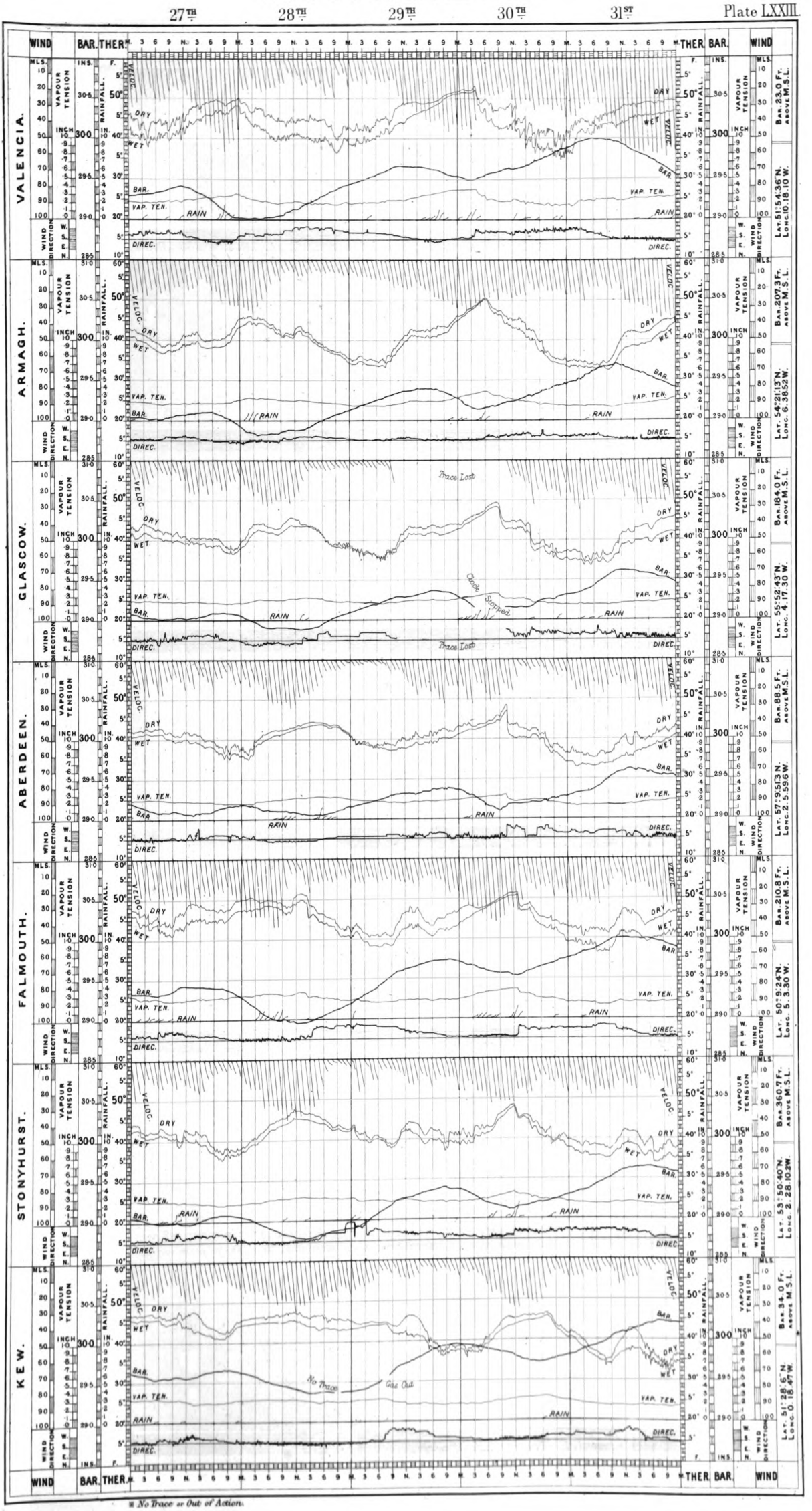
Plate LXXII.



* *No Trace or Out of Action.*

DECEMBER, — 1871.

27TH 28TH 29TH 30TH 31ST Plate LXXIII.



* No Trace or Out of Action.